

The Home HANDYMAN

September 2016 • Vol 23 No 8
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SA'S
ORIGINAL
DIY
MAGAZINE

Spruce up your garden

Water-saving plants

Garden tool maintenance

Make designer paving stones



MAKE A HAT STAND



CONSTRUCT A MODERN
RUSTIC TABLE

+plus

Is your home secure?

How to assess your property
and fix, enhance or upgrade
your security



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How to replace a sliding gate motor

Summer Living

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The long and winding road has come to an end

The Home Handyman magazine has travelled a long and winding road since it was launched in November 1993 by Sandra Gordon of Platinum Publications. The magazine was subsequently taken over by Primedia Publishing in September 1995 and remained with them until October 2000, when it was acquired by me under the newly formed Home Handyman Publishing Company.

Over the years it was served by various editors, starting off with Sean Houghton and followed by Chris Dingle, Mike Hobbs and Cobus Erasmus. In April 1999 the editorial was outsourced to Kay Montgomery, who took over the editorship and she was followed by Nici Solomon, Gregg Cocking and Warren Schmidt all of Wordlink Media. In 2009 the editorial was brought back in-house under Johann Stadler, the longest serving editor, and most recently Gareth Greathead.

The dedicated team at *The Home Handyman* have enjoyed getting involved with the various DIY projects over the years and the magazine has benefitted from a loyal and enthusiastic readership. The topics that have been featured have been varied and covered the full spectrum of the home improvement, DIY and hobbyist categories.

All roads eventually reach their destination and the time has come for me to finally retire – many years after the due date, mainly because I have so enjoyed being a part of the publishing industry. *The Home Handyman* magazine has therefore been put up for sale, and until such time as a new owner has taken over, publication is suspended. It is with regret that the September issue will therefore be the last to appear on the shelves, and posted out to subscribers. We apologise for the short notice but our office premises have been sold, and this dictates the timing.

We certainly hope that there will be a future for *The Home Handyman*, albeit in some other variation.

I would like to take this opportunity to thank all our subscribers and readers for their support over the years. Also to be thanked are the dedicated staff members and contributors who have passionately brought you the magazine on a monthly basis these past 23 years – editorial people, designers, ad sales reps, administrators, subscription managers and dispatch staff.

And so it is with ambivalent feelings that we draw this chapter to a close and say farewell from the entire team.

Allan Swart, Publisher



Two valuable lessons in DIY

It took me a year and a half of working at *The Home Handyman* to learn what I see as my most valuable lessons in DIY

Firstly, not everything needs to be complicated to be enjoyable; in fact, complicated designs can kill the enjoyment DIY should bring. I took on overly ambitious projects more than once, and because quitting wasn't an option, these became especially frustrating. Nothing is perfect and this is something I've come to terms with as a creator. Until I realised this, it was almost impossible for me to let go unless all my work met my subjective view of perfection.

Secondly, a hobby can be lonely and cause you to isolate yourself. This brought my second realisation to the fore – share your love for DIY and hobbies with others. When doing work around the home, allow your partner and children to get involved. I spent hours working alone in my workshop when I should have joined a club. Woodworking in particular is an art where people can learn from you and you can learn from others, no matter your skill set.

This is not the end – I believe this magazine has tremendous potential and in Arnold Schwarzenegger's words, "We'll be back!"

Gareth Greathead, Editor



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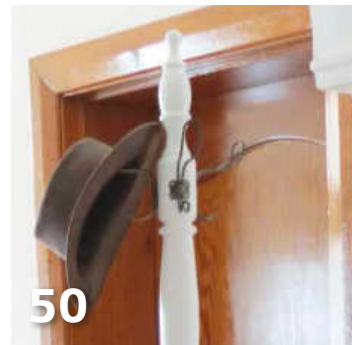
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Superior jointing

The JET JWS-34KX SHAPER is the perfect machine for making your own tongue and groove joints, raised panels, mouldings and more using solid wood. This machine is also ideal for making rail and stile type joints when constructing kitchen doors.

Features and specifications:

- 30mm shaft.
- 2 600W motor, 230V.
- 4 speeds: 1 700 to 8 000rpm.
- Optional sanding drums and tenon table.
- Split fence to support wood after it has been cut.
- Mitre gauge included.
- Ring fence for shaping curved surfaces included.
- ¼" and ½" router collets included.



Please note: All tooling is sold as an optional extra.



For more information

Visit: www.strandhardware.co.za
Tel: 041-585-6996

Insect repellent for paint

Believe it or not, redecorating your home can also rid it of creepy-crawlies. Vital Protection AM3 is a revolutionary paint additive that, when mixed with any water-based internal or external paint, provides protection against mosquitoes and other biting insects. It also repels fleas, flies, ants and spiders. Simply add a sachet of AM3 to five litres of water-based paint. The product is said to be non-harmful and provides protection for up to 36 months.



For more information

Visit: www.vitalprotection.co.za
Tel: 021-100-0036

Protect walls against water ingress

Sikagard-703W is a ready-to-use, water-based emulsion that acts as a water repellent when applied to facades, protecting the building against ingress of water in the process. It can also be used to protect roof tiles, bricks, mortar, masonry, natural and artificial stones, walkways and asbestos cement from the growth of fungi or algae.



Features and specifications:

- Creates a water-repelling surface.
- Protects the building material against ingress of water.
- Improves the resistance to dirt and reduces fungi and lichen growth.
- Allows for water vapour permeability.



For more information

Visit: www.sika.co.za
Tel: 031-792-6500

Make an impact

Slow drilling of holes and bit jams are a thing of the past with the powerful 900W Impact Drill from Framam Power Tools. It has a 13mm keyed chuck, which ensures non slippage of drill bits in high torque loading conditions. Variable speed control allows for precision drilling in intricate applications and there is a hammer action for when maximum force is required in masonry applications. Ergonomics are greatly enhanced with rubber grip inlays and the compact, lightweight design. A 24-month warranty is included as standard.



Features and specifications:

- Capacity: metal – 13mm, concrete – 16mm, wood – 25mm.
- Power output: 900W.
- Chuck: 13mm.
- Action: hammer.
- DIY use.



For more information

Visit: www.lgtools.co.za
Tel: 031-717-6800



Mobile work station

Tork Craft has released a five piece tool storage station on castors. The space saving design has five cases which can be used individually or stacked and wheeled away. The system can be used in the workshop and transported outside or to the job site with ease. It has been constructed with high impact ABS plastic and a secure interlocking system, along with dual side locking clips.



For more information

Visit: www.vermontsales.co.za
Tel: 011-314-7711

Be blown away

Makita has launched another twin 18V cordless tool to its range, the DUB362Z Blower. The twin 18V Lithium-ion batteries, which are positioned in series, supply the leaf blower with 36V of power. This model features a brushless DC motor, which generates less heat build-up and greater torque, making it ideal for prolonged use. It has an air volume of 6.9 -13.4 m³/min and an air speed of 27- 54 m/s. This blower has a sound power level of 96db and a no load speed of 11 400- 21 500 r/min.

The rechargeable and eco-friendly 18V Li-Ion batteries provide longer run time. The batteries and the charger are sold separately.



For more information

Visit: www.makita.co.za
Tel: 011 878-2600

New drill/driver

The Black+Decker 14.4V Li-ion Drill Driver (EGBL14KB-Bg) comes with two 1.5Ah long life batteries in a carry case. It can be used on both wood and metal and has 10 torque settings for screwdriving into a variety of materials using different screw sizes.



For more information

Visit: www.blackanddecker.co.za
Tel: 011-472-0454

Decorative waxes in black and white

Annie Sloan has launched Chalk Paint Waxes in Black and White. The new waxes complement the company's existing range of decorative products to create new looks and styles whilst providing a protective finish on painted projects and bare wood.

Applications:

- Black Wax achieves an industrial style without it looking aged and antiqued.
- Finish with Black Wax after painting with bright colours to create a warehouse look.
- Black Wax works particularly well on pale woods such as pine or pale oak.
- White Wax can be used for a coastal, bleached look or a soft Scandinavian look.
- Wax can be used on bare wood to achieve a limewashed look.

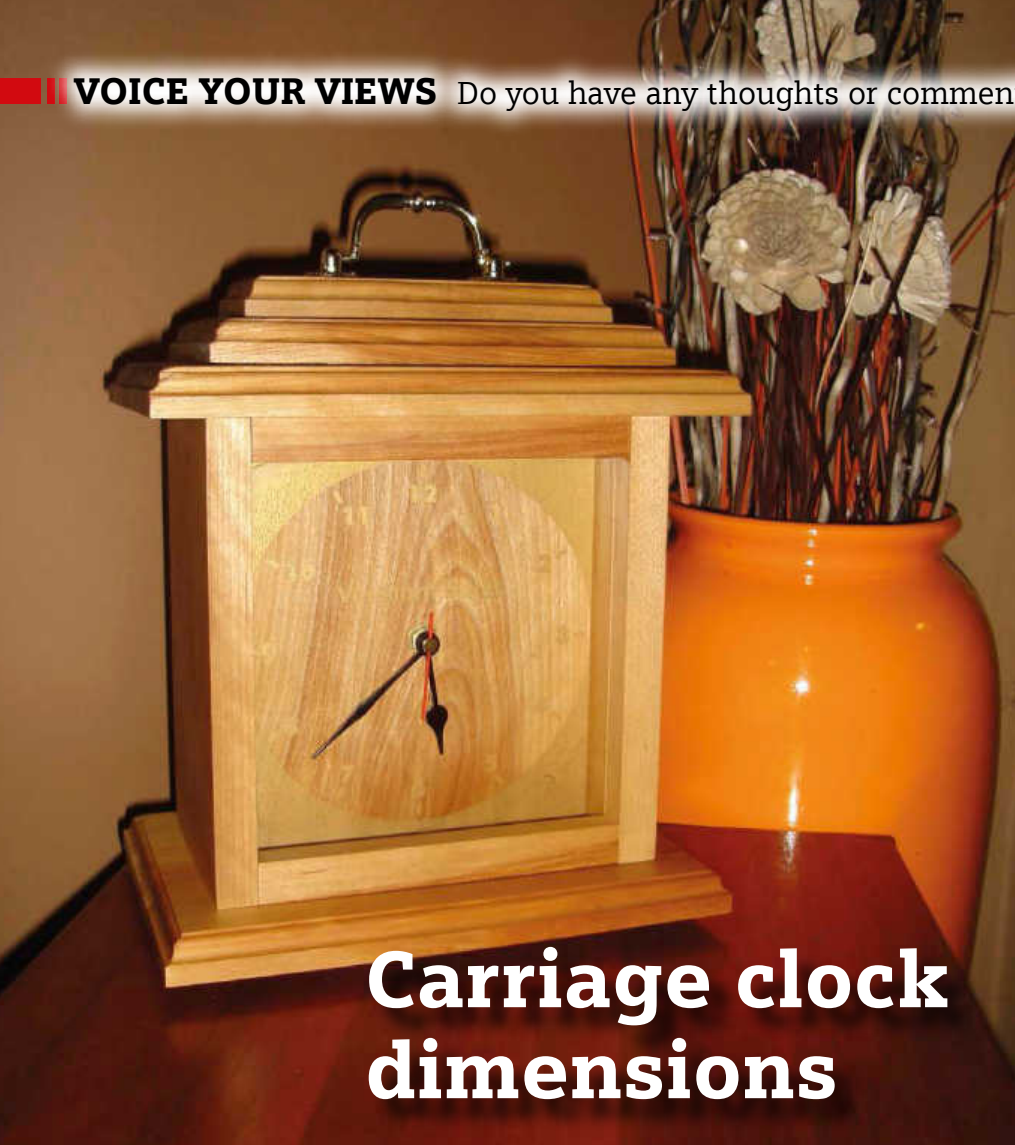


Waxes are R150 for 500ml and are available exclusively from Annie Sloan stockists across South Africa.



For more information

Visit: www.anniesloans.co.za
Tel: 011-880-7183



Carriage clock dimensions

I read *The Home Handyman* from cover to cover each month – well, pretty much. July had some interesting articles, but also a few problems. My comments come in goodwill and I don't want anyone to think I'm complaining. I noticed a few mistakes on the cutting list provided for the carriage clock project in the July issue (page 44), 'Marking time'.

It would appear that all the wood used is 20mm thick. The box sides (part D) in the cutting list are defined as 120 x 120 x 20mm, but the one shown in photos 6 and 17 doesn't look 'square'. If the door (part F), defined as 170 x 170mm fits in-between the two braces (part E) at the back (photo 17), then the overall height of part D must be either 170 + 30mm or 170 + 40mm, depending upon which way part E is oriented. So sides part D must be either 200mm or 210mm long.

Part E is defined as 15 x 15 x 20mm, but if cut that size, it would be almost a cube – a bit like a dice. And lastly, in Step 6, it says to cut a groove 5mm wide for the glass to slide into. But the glass called for in the cutting list is 20mm thick which can't be right. I guess it should be 4mm.

And then finally, a cautionary statement: On page 30 in 'Make a metal gate', a reader welds galvanised steel. During the welding process, the zinc alloy on the surface of galvanised steel (I say 'alloy' because it is not, as many think, a coating) is burned away by the arc and converted to zinc oxide as the fumes mix with air. Zinc oxide is non-toxic, but it can cause problems such as fever, chills, thirst, headache and nausea if inhaled for lengthy periods. Welding of galvanised steel should always be carried out in a well-ventilated environment or even outdoors.

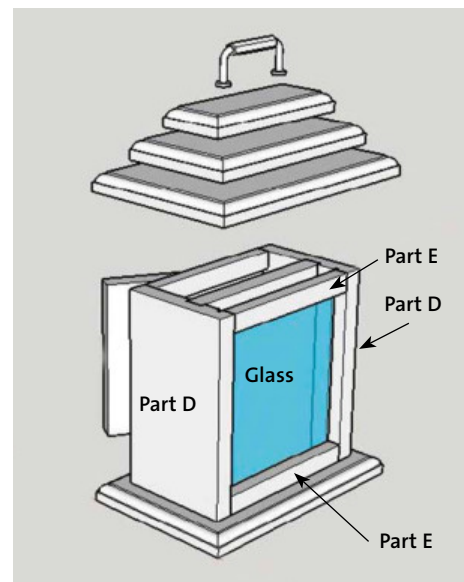
Malcolm Cunnington, by email



Winning letter

This month's winning letter comes from Naomi Edwards who wins a Makita DUB182Z 18V Cordless Blower plus battery and charger

Ed replies: You will not believe it, but this mistake got past the whole team despite a thorough looking over by all. You are correct in assuming part D as 210 x 120 x 20mm, Part E is 170 x 15 x 20mm and the glass should be cut to 172 x 172 x 4mm. We apologise and hope that anybody intending to build the carriage clock sees your letter. We also thank our readers for their attention to detail of the articles featured. Here is a drawing reader Hugo du Preez did of the clock which we hope will prove helpful.



Sneezewood for fun

I was pleasantly surprised by the April 2016 edition of *The Home Handyman*. During the course of my life, I have come across sneezewood on several occasions, years apart. The first time I discovered sneezewood was in 1954 when I was 12 years old. I grew up on a farm in the Free State and went to school by bus. On the way, we had to open a gate. Usually two guys jumped out, one to open the gate and the other to scratch some dust from the sneezewood gate post. Back in the bus it was fun to sniff it and sneeze.

The second time was in Cala, Transkei when we went to renovate a church in 1998. In the adjacent field stood two fence poles, an indication that there was a fence years ago. In the earlier years, sneezewood was popular for fence poles because it is virtually indestructible. It doesn't rot and no ant or other insect can destroy it. The people there had no use for it, so I brought it home.

A few years later, I listened to a radio interview with a guitar builder. He said that he uses sneezewood for certain parts of the guitar. Then, about 10 years ago, I visited a sculptor in Worcester. In his garden stood a few sneezewood poles with beautiful birds carved into them. He told me that it is not so easy to work with sneezewood. The dust irritates the skin, eyes and lungs. He therefore works with gloves, a dust mask and protective glasses. Last year, I visited a woodworking shop in Sedgefield where I learned that sneezewood turns well and is rarely stumbled upon today.

The surprise? I wrote this letter and left it overnight to post the following day. I paged through the magazine before sending my mail and on page 56 in the April issue there were pictures of two sneezewood projects. Amazing!

Chris Erasmus, De Doorns



DIY for all

WINNING LETTER

I discovered *The Home Handyman* magazine for the first time this month (July 2016). I'm a 40-year-old mother of three who, despite many attempts, has never enjoyed home magazines with more articles on fashion and recipes than home DIY. I've always loved nature, the garden and home, and have wanted to learn how to make my own furnishings for a long time. I also paged to the 'Missing an issue?' page and what do you know? Each and every one covers a topic that my husband and I need to build our dream home.

Your magazine has just the right mix of everything I enjoy – in the past, I had to buy several magazines at a time to quench my thirst for DIY knowledge. I have finally found a magazine that does it all for me – THANK YOU!

Naomi Edwards, Kimberly

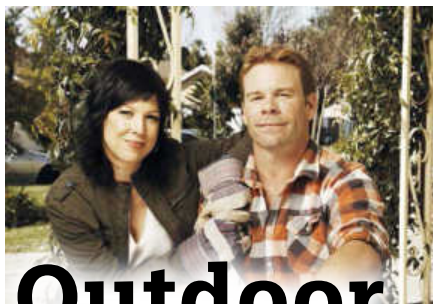
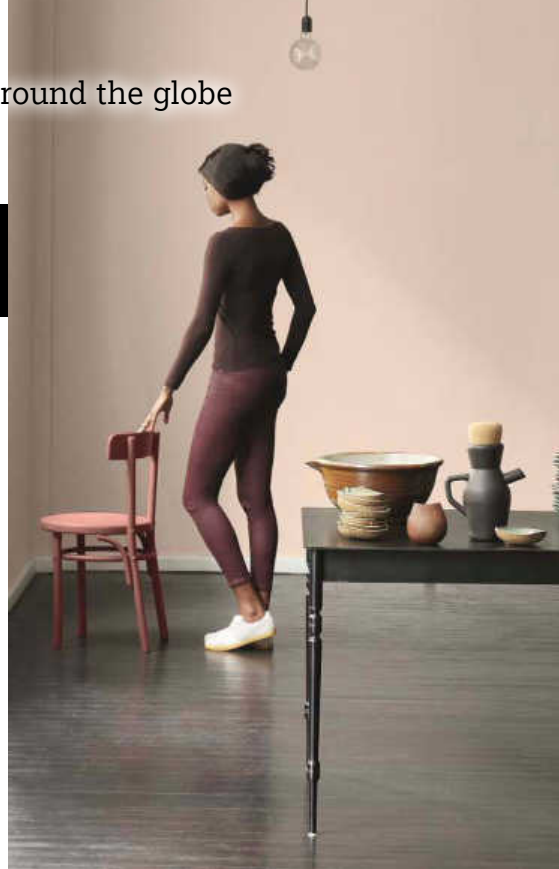


Colours for 2017

Plascon's annual Colour Forecast for 2017 was launched at Decorex Joburg in August. Plascon, together with its international partner, Colour Hive, collaborate to create the Colour Forecast each year. Plascon's global colour manager Anne Roselt says, "It is through combining this global insight with our understanding of South African tastes, lifestyles and decor preferences that we are able to create something that is both useful and inspirational."

"Our inspiration for this year came from the world we feel under our feet and the worlds we create in our minds. This has resulted in a more minimalistic approach to interiors with earthy colours making their way indoors."

Plascon's 2017 colour of the year is 'In the Mood' – a neutral colour with earthy grey and subtle pink tints. The colour is warm and grounding, but lends itself to the clean and sophisticated look we desire. "It really captures the 'back to basics' feeling that the world is going through at the moment but is still rich, warm and easy to use."



Outdoor updates

In just about any neighbourhood, you see it – that one run down house that is overgrown and neglected, with junk strewn everywhere. Watch as the *Fix This Yard* team and hosts Amy Devers and Alan Luxmore completely renovate the yards and exteriors of needy homes. They will show you practical and easy techniques for updating and maintaining your outdoor areas.

Starting on 12 September on DStv Channel 176, the show schedule is:

Mondays: 12:30pm

Tuesdays: 4:30pm

Thursdays: 8:30am

Saturday: 5:30pm

Sundays: 1pm/9:30pm

Cape Town Flower Show



The Cape Town Flower Show takes place from 27-30 October at The Castle of Good Hope in the centre of Cape Town. This annual lifestyle show brings together gardens and gardening, planting trends and designs for living outdoors, and celebrates local food, culture and community. The show taps into a gardening culture that's young, vibrant and identifies with a universal awareness for the need to care for our environment.

Where: Castle of Good Hope, Cape Town

When: 27-30 October

Time: Starts at 10am

Entrance: R130-R180,
children under 10 free



For more information

Visit: www.capetownflowershow.co.za

WIN tickets!

The Home Handyman, in conjunction with the organisers, will be giving away a limited number of general admission tickets to the Cape Town Flower Show.

To enter simply send an email with the subject line 'Win Flower Show tickets' with your contact details to: megan@wiredcommunication.co.za



Woodworking Association news

East Rand Woodworking Association spring show will take place on the 3 September 2016 at the Northfield Methodist Church (Corner Aerodrome Ave and Webb Str) from 9am – 5pm. Safe parking on the church grounds, entrance on Hurricane Ave (GPS Coordinates: 26 09' 59.72 S, 28 18' 48.93 E)



For more information

Tel: Mark Lemmer on 082-775-6631

Pretoria Club show will take place on Saturday 1 October 2016 at the New Hope School, from 8am-2pm. See furniture and turned items, as well as demonstrations and tools and equipment for sale. The New Hope School is for children with special needs.



For more information

Visit: www.ptawoodworkers.com
Tel: 082-410-8360

Witwatersrand Woodworkers Association Spring Challenge is set to take place on 10 September at the Albertskroon training centre. There will be two competitions and members are invited to make a milking stool at home and an egg cup that can be made in a few minutes. Steven Barrett will demonstrate the making of an egg cup at the September turner's meeting, so you can see how easy it is and practise making one in the meantime.



For more information

Visit: www.wwa.org.za
Tel: 083-457-4801

HOMEMAKERSexpo



Inspire, create and innovate your dream home with help from this year's Cape Homemakers Expo. The show takes place at the Cape Town International Convention Centre from 15-18 September. You will find up-to-the-minute kitchens, state-of-the-art appliances, on-trend DIY and beautiful interior and décor ideas all under one roof.



For more information

Visit: www.homemakersonline.co.za

Where: Cape Town International Convention Centre, Cape Town
When: 15-18 September
Times: Thursday-Saturday: 10am-8pm; Sunday: 10am-6pm
Entrance: Adults R80, pensioners R70, children under 12 free (tickets available from Webtickets and at the door)

WIN tickets!

Stand in line to win one of 20 double (40) tickets to the Cape Homemakers Expo, valued at R80 each!

To enter simply send an email with the subject line 'Cape Homemakers tickets' to info@purplepine.co.za. The first 20 to enter will win double tickets.



Laser calibration and repair

Bosch opened its first dedicated calibration centre in South Africa in August. It is located within the existing Bosch Service Centre on 35 Roper Street in Johannesburg.

The following Bosch products can be calibrated:

- Line and point lasers.
- Optical levels.
- Rotating lasers and receivers.



For more information

Visit: www.bosch.co.za
Tel: 011-314-7711

A leaky roof

There is a small area on my roof that does not have enough gradient, which results in leaks during rain. It is a normal roof with roof tiles. Please advise which products I should use and also the method to sort this out.

Avinash Singh, by email

Ed replies: The best way to prevent this is to install damp-proof course (DPC) under the roof tiles. There are ways to seal them from above, but it will be more costly and labour intensive. If you can access the roof cavity, I would recommend DPC. It must be tacked onto the rafters supporting the tiles.



Waterproofing a steam room

We are busy with a bathroom renovation and I would like information about waterproofing. We want to build a steam and shower combination room, however no one seems to be positive about what product will be the most effective to use for the waterproofing. There is a wooden floor, one wall is brick, the current ceiling is drywall and the rest of the walls are also drywall. What do you suggest for waterproofing this area so that it will be able to withstand the heat of a steam room and also the water and steam from the shower?’

Ilhaam Waja, Facebook

Sales and marketing director at A.Shak

Cindy Engels replies: Firstly, to get a seam free waterproofing between three different types of materials, you will have to use a joint sealant. The expansion and contraction of all these materials, especially when exposed to heat and moisture, will vary causing cracks at the joints where the different materials meet.

You don't mention whether you will be tiling or just plastering the walls. I suggest that you plaster the ceiling as well as all

the walls. A flexible joint sealer used at all the joints where the different materials meet will help to limit movement of the materials. I suggest a two barrier system because of the probability of cracking. Firstly paint a slurry coat of two parts cement mixed with one part TileLoc onto the raw surfaces. Apply two coats of this slurry are advisable, with the first coat applied horizontally and the second coat vertically. Plaster as normal over this slurry.

Once the plaster has properly dried, paint two coats of AquaLoc over the surface. This is a very flexible waterproofer and will fill up any hairline cracks that may develop. If the walls are to be tiled, add TileLoc to the tile adhesive for better bonding to the AquaLoc. As for the wooden floor, I would be reluctant to tile or screed directly over it as there will be a lot of movement, which could possibly cause major cracking and therefore it would not be waterproof. A marine sealer painted onto the timber could work, but this is definitely not my area of expertise.



For more information

Visit www.ashak.co.za
Tel: 011-822-2320

Wooden floor repairs

I need some advice on repairing wood flooring. The floor is the standard 6" pine flooring. It became floppy and sagged at the entrance of the kitchen. I suspect that the beams below the flooring need to be replaced as well, which I have no problem with. What I am not sure of is whether the new flooring can be replaced and then reach a stage where the tongue and groove of the last plank will not 'click'. This will leave the new section unstable at the 'last' joint. If I were small enough to crawl under the floor, I could put stiffeners between the last two planks which will steady the unit. I hope you can assist.

Butch Davies, by email

WINNING
QUERY

Wooden floor specialist Tony Mendes from Tree-Mendes replies:

There are numerous reasons why this could be happening, which cannot be ascertained without a proper site inspection.

Some possible reasons for a floor sagging include:

- Moisture, which has damaged the under structure.
- Termite damage.
- An old floor that has reached its sell-by date

It is usual for an entrance to any room, if it accessed from an outside area, to be a high traffic area. Therefore, in time the floors could become damaged and will need replacing. To solve the problem, we suggest that a few boards be lifted to first assess the exact cause of the damage. If it's a moisture problem, this will have to be solved first to avoid it reoccurring.

If the under structure is just old, then it can be replaced in this area only. If the old floorboards are in good order, they can be reinstalled, so that you have the same thickness flooring right through the area. However, in many instances, this is not possible and new floorboards need to be purchased. If they are a standard pine floorboard, then they will be easy to purchase; if not, a wood merchant can be approached to cut new boards to the exact spec as the old ones.

This area will have to then be sanded and sealed. However, there is one more very important factor to consider: How good is the actual wood on top? Is there enough wood to sand the timber down almost to the tongue and groove system?



Winning query

This month's winning query comes from Butch Davies who wins a Tork Craft Capsule Task Light from Vermont Sales



For more information

Email: treemendes@mweb.co.za
Tel: 083-325-6086



Don't leave security another day

Assess security threats and security features at your property and fix, enhance or upgrade these no matter how small or unimportant they seem

By Gareth Greathead

Security should be top of mind for all South African homeowners. The truth is, if you haven't been a victim of crime, security tends to take a back seat. This may present itself in the form of complacency, the taking of risks or being oblivious when it comes to potential security threats. Many of these risks can be negated by adding, upgrading, maintaining or repairing security features.

National Home Security Month (NHSM) is an initiative that focuses on positive solutions to rectifying security issues. NHSM aims to educate South Africans on all matters relating to security in and around the home. As part of the initiative, NHSM partners, including Yale, ADT and ER24, conducted safety audits and developed case studies that evaluate physical security structures.

Security auditing

You can call in a security expert to do an audit on your home and make recommendations, but by following audit guidelines, you can create a plan to improve security, either immediately or over time.

The basic principle behind effective home security is to create layers that enable early detection of burglars – the more layers, the safer a home is. Security improvements can take place from the outside inwards, for example, by improving perimeter protection like electric fencing or adding a CCTV surveillance system for early detection. Security can also be improved from the inside outwards. This would normally include the installation of passive infrared beams (PIBs).

CCTV cameras act as a visual deterrent and can monitor entry points



Smart home security systems allow you to view your property while not at home



Location and risk

The location of the house is critical in determining and protecting against risk. There are three main factors that must be taken into account.

The location in relation to structures nearby or surrounding it

A property positioned near to a commercial centre is at higher risk. Residential risk assessor at ADT Marcel Pienaar says, "Residents are less likely to spot a suspicious vehicle in the vicinity. At the same time, this may be offset by the fact that daytime intrusion may be observed from the shopping centre thereby deterring criminals."

The use of the property partly as a commercial venue increases its risk profile

Marcel says, "Again, any vehicle entering or parking in front of the residence will not raise any suspicion. In addition, criminals will assume there is a high chance of financial gain as well as electronic equipment if a burglary is committed."

Electric fences offer early detection and are often linked to armed security services



Note

There is an increase in incidents of armed robberies in residential areas between 10am and 2pm. This is a new trend directly related to the increase in drug related crimes.



Floodlights with motion sensors are a cheap and effective deterrent



Note

Members of a townhouse complex or small community can join an armed response company as a group, reducing costs per unit and improving security of the entire complex

The risk of an armed robbery taking place during business hours also increases. The residential part of the unit will be the target especially after normal working hours as the perception is that some of the daily takings will be stored in the house."

Spokesperson for National Home Security Month and product and marketing manager at Yale Security SA Clint Jones says, "It may help to implement a measure allowing visitors to introduce themselves before access is given through the gate. The easiest and most cost-effective solution is to install a video intercom system. For convenience, the installation of a magnetic lock with a remote buzzer will enable any person from the inside to unlock the gates.

"Not only do CCTV cameras act as a visual deterrent, they can also be used to monitor entry points and vehicles parked both outside the home and in business parking areas. CCTV systems may be linked to mobile devices and security companies making it possible to view the property when not at home."

During and directly after building operations there will be an increased risk to the property

Builders may be provided with a clear view of what's inside. In addition, they will be aware of movement of people in and out

of the house. "Be especially cautious at this time as builders may notice negligence to lock security gates, for example. If possible, avoid displaying valuables in areas where people can get a clear view inside the home," says Marcel.

Perimeter security and intruder detection

The perimeter of the house is the first line of defence against criminal intrusion. As with any security structure, it is important that the perimeter structures help to detect and deter infiltration of the premises. If the perimeter is breached the confrontation may result in a later burglary or armed robbery.

In the security industry, a solid double brick wall exceeding 2.2m in height is classified as a medium security wall. Electric fences offer early detection and are often linked to armed security services. Marcel says, "While more expensive, electric fencing is generally seen as the best choice because it is more difficult to climb over or switch off. Other fencing and walls, while a deterrent, can be climbed over from the street – even when barbed wire has been installed."

Lighting is a cheap and effective deterrent, although energy consumption should be taken into account. It is possible to connect floodlights with motion sensors to a 12V buzzer inside the home informing those inside of movement in the area.

Community security

Discussing security concerns with neighbours can help improve overall security. Community watch initiatives may be linked to interactive social media groups for faster sharing of information. "More people will be on the lookout for suspicious behaviour and alerting neighbours. This also provides an understanding of crime trends in the specific area, which allows homeowners to improve security defences against common crimes in the area," says Marcel.

Internal security

Alarm systems

If affordable, an alarm system should be installed with internal and external beams or passive infrared sensors (PIRs). Marcel says, "Relying on detection inside the home is risky as it is only when motion is detected that you'll be alerted. This means that the confrontation with armed elements is increased." PIR units must be positioned correctly to ensure the largest coverage possible.

Doors

Exterior doors should always be solid wood instead of the hollow core doors used for interior doors in bathrooms. Two lever mortice locks should only be used for interior doors – people often purchase these as they are cheaper than more secure locks. Clint says, "Keys for two lever locks are easily available from retail outlets and there are not many different kinds of keys, meaning burglars can gather a collection of these. A three or four lever mortice lock is a much more secure option.



Note

A deadbolt or multipoint lock provides an additional locking function and helps prevent crowbarring or bashing down of doors.

Alternatively, it is best to choose a cylinder lock as keys have to be cut at a locksmith to be duplicated."

Burglar bars

Burglar bars are present on most South African homes and the anchoring points for these are of utmost importance. In many cases, Rawl bolts are used due to the strength of the fastener. "Bolt heads are left exposed and can be easily removed with a ratchet. To solve this, make sure the

Install an alarm system with internal and external beams



Don't drill - use High Tack

High Tack



Den Braven High Tack instantly adheres weights of up to 20kg. No need to drill holes in tiles and concrete for fixtures like a bathroom cabinet, toothbrush, soap and toilet roll holder.

Use on tiles, cladding, splash backs, countertops, glass, porcelain, stainless steel, and wood for a weight bearing and permanent fixing.

Filling a gap? Use PU-Foam

PU-Foam



Den Braven PU-Foam is a dense celled expansion foam, ideal for filling joints between walls, ceilings, floors and cavities between brickwork and insulating pipeline mountings, windows and door frames.

It can be cut, once cured, plastered over and then painted. Always read the instructions on the canister and wear the protective gloves, which are included in the canister packaging, when working with PU Foam.



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bolts are tight and then weld or slightly grind the bolt head shape making it more difficult to remove,” says Clint.

Ideally, interior burglar bars should be welded to the frame of a metal window, but pop rivets are sometimes used due to their convenience. Also, many ‘DIY’ type bars are only secured from the sides making these easy to leverage away. The addition of vertical bars on the top and bottom will increase rigidity.

Security gates

Security gate locks should always be five lever locks or greater and ideally laminated. Double security gates (those with a left and right gate) are only effective if installed and used correctly. If the gate is only secured at one point at the centre, with no means of holding the gate in position at the top or base of the gate, this leaves the gate vulnerable to being wedged open.

A relatively cheap security fix can be effected by closing off the bedrooms from the living areas with a security gate, which creates an additional barrier. Pay attention to the fitment of the gate as the openings to these areas may not



Note

Burglar bars and security gates are critical elements and should be rust proofed and painted.



Install stand-alone smoke detectors to alert you in the event of a fire

facilitate the fitment of a standard sized gate. In many cases, the fitment of a sliding gate will resolve this.

Criminal trends/ tendencies

Crime trends are showing a move from night-time break-ins to daytime break-ins while people are away at work, with opportunistic crime increasing during holiday periods and long weekends. Clint says, “In years gone by, burglaries and house intrusions were common in the early hours of the morning between 3-5am, however, burglaries and robberies in the afternoon between 2-4pm appear to have taken over.”

Criminal trends highlighted by the SAPS

- There is a slight decrease in burglaries, but armed robberies have increased proportionately.
- Hijackings take place at entrance gates between 4pm and 8pm after vehicles are followed from shopping centres, airports and banks.
- Armed robberies take place during the day and up to 8pm. ✖

Fire safety

Fire safety and security are inseparable and work together in keeping those inside safe.

- Everyone in the home must have access to keys and clear access to multiple doors as there may be limited time to escape in the event of a fire.
- Install stand-alone smoke detectors in bedrooms and lounge areas to alert you of a fire.
- Plugs should not be overloaded with too many appliances connected, as this creates a fire hazard.
- A fire extinguisher and/or fire blankets should be available to residents.
- A first aid box should be at hand to deal with medical emergencies.
- Chemicals and poisons should be stored in a locked away area.
- Ensure gas systems are safely installed and that a Certificate of Compliance is issued after installation.
- Gas systems in close proximity to electrical wires can pose a serious fire risk.
- Install gas detection devices.

Recommendations made during the security audit of a home



The design of this wall makes it a step ladder and no effort has been made to increase perimeter security with electric fencing or alternate defence. Note that the contractors next door have a clear view of what is going on inside the premises. Also a potential intruder can easily hide behind the shrubs at the entrance



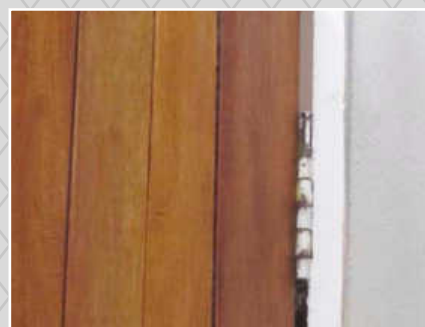
Sliding doors are not the most secure option and must be backed up with a security gate. While there is a security gate fitted here the door handle has come loose and can be easily opened from the outside

Ideally large windows should be protected with burglar bars. These burglar bars are only secured on the sides, so they are vulnerable to being forced/ twisted open



Double security gates must be properly anchored into the ground or they may be easily wedged apart, breaking the lock

Guard against areas that may be used as a hiding place for intruders

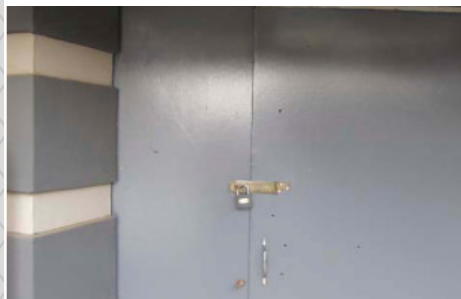


The hinge pin on this door is coming out, making it easy to remove the entire door

Existing security checklist

- Ensure that existing gate motors are functional.
- Check that external security lights are working and replace if necessary.
- Test that the alarm system is in good working order and that it is set up correctly for 'Full/Away' and 'Home/Stay' arming.
- Make sure that fixed and mobile panic buttons are all working.

If latches are fitted on the incorrect side it becomes easy to unscrew or drill out the pop rivets



Security gates must be properly fitted in order to be effective. The space in-between these gates makes it vulnerable to crow barring



Sliding access control

By Gareth Greathead

Gate motors are not only convenient but also an important security upgrade

In order for a motorised gate to work reliably and enhance the security of your home, it has to be installed correctly. There are two basic designs of motorised gates: swing and sliding, with sliding gates the more popular of the two.

Safety

Sliding gates can weigh in excess of 100kg and must be secured before any work on the gate begins. On a sliding gate only the brackets on either side of the gate keep it standing upright. If the guide wheel bracket is removed and the gate is pulled back, the

gate will come crashing down immediately. If your gate has a locking mechanism fixing the gate directly to the wall or gate posts, this may be effective in securing the gate.

Gate inspection

The first step in ensuring reliable operation is to inspect the gate and related hardware. If your sliding gate is already fitted, you may need to make some adjustments to accommodate the fitment of a gate motor. If you are replacing or upgrading a motor, you will need to check that everything is positioned correctly. A gate may open to the

Gate checklist

- Ensure the gate is moving freely.
- Determine the weight of the gate.
- Measure the force required to open and close the gate.
- Check the positioning of the brackets.

left or right depending on its orientation. To avoid confusion I will refer to the side of the gate where the motor is located when closed as the 'closing' point and the opening point on the other side.

Selecting a motor

Installing too small a motor will cause the gate to creep slowly and it may burn out over time. The weight of the gate needs to be approximated and the force required to open the gate measured; the specifications of gate motors are rated according to these parameters.

Guide runner wheels

The guide wheels should run smoothly without the possibility of catching on any part of the gate. Firstly, the guide wheel bracket needs to be correctly positioned and aligned with the gate so that it cannot fall over. Secondly, it should be positioned in a way that prevents it being lifted from the rails when closed. An anti-lift bracket can be added to the upper portion of the gate so that when the gate is closed, it aligns with the guide wheel bracket. This should be set so that the gate cannot be lifted more than 5mm when closed.

End catch bracket and end stop

Without a reliable start and stop point, the gate limits will change, resulting in the gate motor working unreliably as it



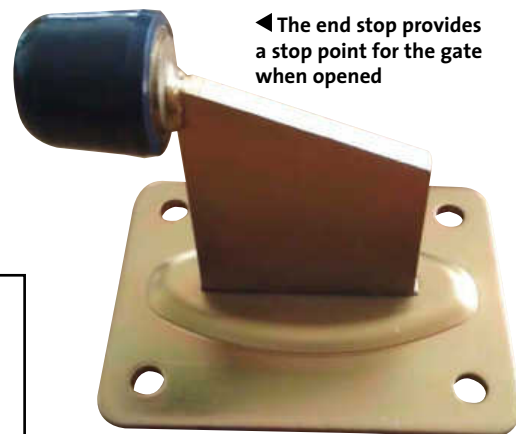
▲ Check that the guide runner wheels are aligned with the gate



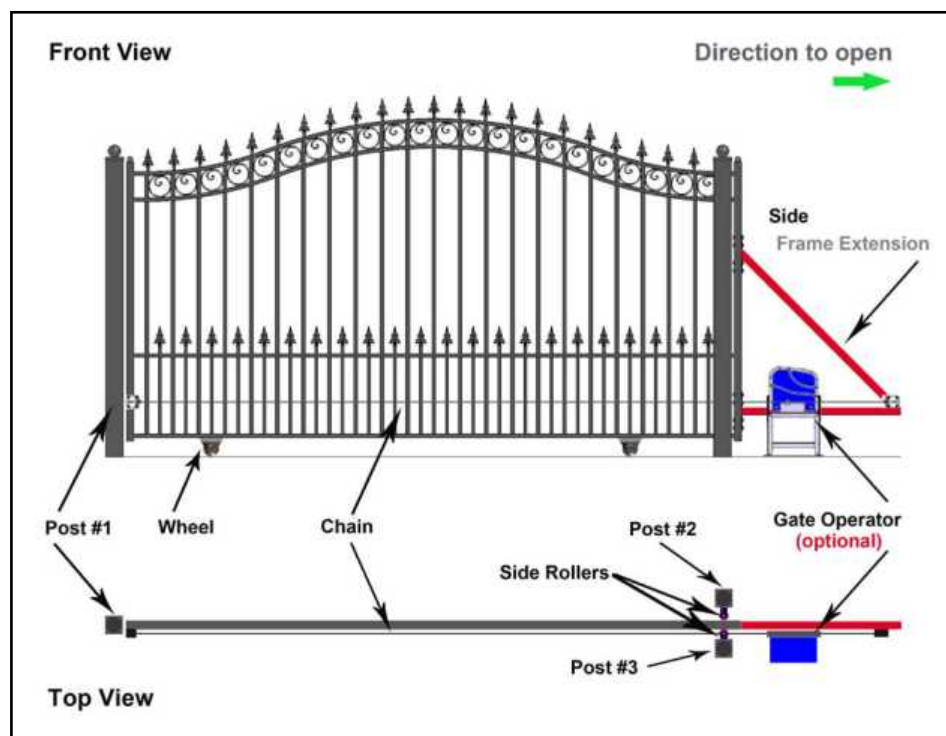
▲ Make sure the gate slots fully into the end catch bracket and that the gate cannot be lifted when closed

attempts to self-adjust. This may result in a gate not opening or closing fully. On the 'opening' side, an end catch bracket is fitted, providing a stop point and the gate must slot into this at closing. It is also there to prevent the front of the gate from being lifted from the rail and to prevent the gate from running off the rails when closing.

The end stop provides an end point and prevents the gate from running off the rails when opening. An end stop may be welded to the rail so that it contacts the rollers at the fully open position. The end stop can also be added to the wall, fence or even the pavement.



◀ The end stop provides a stop point for the gate when opened



Rolling stock

Sliding gates have wheels that run on a rail on the paving. Mud, stones and sand tend to build up in-between the running rail. To ensure the gate continues to run smoothly, this area should be swept weekly.

Rack

For the gate to run smoothly the rack has to run in line with the rail below. The 'meshing' of the teeth is also of importance. There must be a small amount of play (3mm) between the teeth found on the rack and the pinion or drive wheel on the gate motor. The gaps in-between the teeth must remain consistent throughout.

Extension bracket

Depending on the relation between the gate and the motor, an extension bracket may be necessary. This makes it possible to extend the length of the rack to make contact with the motor positioned behind the wall or fence.

Install your own motor

Wiring

If no wiring is in place, it is strongly recommended that you get the wiring of your gate motor done by an electrician. Wiring designed for use underground must



Ensure that the wiring for the gate motor is installed according to specification



Decide on a method of securing the base plate to the plinth



Consider your wiring before securing the base plate



Note!

Be aware that criminals use tape to block the connection between the infrared beams when the gate is in the closed position. This will cause the gate to remain open once you have entered the property.

be run in a trench at a certain depth and inside a PVC conduit. An isolator should be fitted within 1m of the gate motor and it should be connected to its own circuit on the DB board. The isolator output is run through the base plate and connected to the transformer inside. You can dig the trench required and prepare the wire runs and other components, and then call an electrician to commission the circuit safely.

Damage to the gate motor as a result of incorrect fitment will not be covered by the warranty. The same is true for any insurance claim where faulty wiring or something related to incorrect installation of any electrical fitting is to blame for an incident.

The foundations

The base plate that comes with the gate motor must be flush with the driveway and in a place where it cannot be hit by a vehicle. If you intend fitting an anti-theft bracket, make provision for this when planning the positioning of the motor. Owner of FZ Tech security installations Francois van der Merwe says, "The rack can be used as a gauge to work out the distance needed between the motor and the gate."

The base plate needs to be fitted to a concrete plinth or one should be laid if there isn't one. Most base plates come with concrete anchor tabs that should be positioned before the concrete plinth is poured. Francois says, "Before fastening the base plate to the plinth, make sure you have the power cable and any other cables that you need to conceal within the motor running through the base plate opening to prevent them from sticking out from



Fasten the mounting bolts through the underneath of the base plate before fitment



The nylon Raz rack must be fitted and meshed with the pinion drive gear on the motor



Terminate the wiring and complete setup of the gate parameters

the sides. Also, screw the three bolts through the base plate from underneath and place a nut and washer on top (this is important for later). "I use M10 Rawl bolts to secure the base plate to the plinth as they are sturdy and easily adjustable."

"Place the gate motor over the three bolts extending from the base plate and you can position it forward or backward, depending on the distance of the gate. When you are happy with the position, place another washer and nut on each bolt and fasten them. If you have a theft resistant bracket, slide the three positioning brackets over each bolt, followed by another nut and washer. If the gate motor slopes to one side, loosen the bolts holding the motor in

place and lift it by unscrewing the nut and washer under the gate motor." The same can be done when adjusting the spacing between the rack and pinion on the motor.

Once the base plate is secured, an earth rod needs to be driven through the base plate and into the ground to ensure a good ground.

Fitting racks

Choose between nylon, Raz or steel racks. "I prefer nylon racks as they are easy to fasten and easy to replace if they get damaged. I usually start by laying one length on the gate motor pinion gear and fastening the other end with a Tek screw. When all the racks are fastened and the motor height is adjusted, the gate should run smoothly when slid open manually," says Francois.

The pinion on the gate motor

"Lastly, before set up; most motors use an origin magnet, which must be fitted to the rack about 500mm away from the gate motor when it is closed. Test if the gap between the magnet and the origin sensor in the gate motor is close enough. To do this, pull the gate past the sensor and listen – there should be an audible click."

Setup

You will need to refer to your user's manual when doing the setup. There are several ways to set the opening and closing schedule of your gate motor. The first is 'press to open and press to close'. In this instance, the gate will remain open until

the button is pressed to close again. The disadvantage is that it can be easy to forget to close the gate, giving robbers free entry. The second way is to set the timer for a certain interval of time. For example, when you press to open the gate, it will open and close after 30 seconds have passed. The safest way to set opening and closing is to install infrared sensors on either side of the gate. If the space in-between these is obscured, the gate will stay open and close soon after contact is re-established.

Finally, the gate limits should be set and additional remotes paired. Most models use an automated process, where the motor 'learns' the stop points by way of opening and closing the gate. "The first step in achieving this requires moving the gate to the position indicated in the manual and turning the manual wheel to lock the gate motor in gear. Connect the battery and power to the gate motor on the controller board and follow the setup procedure indicated in the manual or control panel." You may have to switch the poles on the motor depending on which side of the gate your motor is positioned. Pair your remotes and the gate motor should be ready for use.✂



Anti-theft bracket

There is a growing trend for burglars to remove the entire motor in an attempt to gain access to your property. In some instances, only the gate motor is stolen as it has considerable value and is easily resalable.

Garden tool maintenance



Regularly maintaining your gardening tools will ensure that they are always in good condition and ready for use

By Gareth Greathead

Most of us already have all the tools we need to make gardening easy and fuss free, but like all tools, these need to be maintained if they're to last. With summer nearly here, now is a good time to ensure that your tools' running gear is in good order.

Powering up

Gardening tools make use of a variety of power sources, including fuel, electricity and batteries. Fuel-powered machines are normally bigger, noisier and more powerful, but require more maintenance.

Follow these tips to keep your tools in tip-top shape.

Fuel-powered tools

Empty the tank before storing. Storing a machine for a prolonged period with fuel inside may cause the petrol lines to perish and even cause damage to the carburettor. If you did not empty your petrol tank last year, remove the fuel from the tank. You may have to clear the fuel lines and remove the carburettor to ensure the jets are clear and all moving parts are operating freely.

Spark plugs provide the spark needed for ignition. A faulty spark plug may cause difficulty starting the machine or cause it to run roughly. Disconnect the spark plug wire and use a spark plug spanner to remove the plug. This step also releases the air lock in the block, allowing the oil to drain from the sump quicker when removed. Assess the plug's condition by looking at the amount of carbon build-up and replace if necessary.



A worn out plug will make starting the lawnmower difficult

Change motor oil before each growing season



Oil changes will result in smoother operation and a longer life for the machine. Consult your user's manual to ensure that you purchase the correct oil for your machine. Loosen the drain bolt at the bottom of the engine and drain the oil. It is important to take used motor oil to a designated ROSE foundation collection point.

to blow dust out of the paper filter from the inside (outlet) of the filter.

Foam filters can normally be cleaned in warm, soapy water and air dried. Before replacing, coat the filter lightly with air filter oil from a lawnmower repair centre or hobby shop. Add a few drops of this oil onto the filter and place it in a plastic Ziplock bag to work the filter oil into the foam.

Blocked air filters will cause rough idling and may increase fuel consumption. These may need to be replaced, but some are designed be cleaned. Use an air compressor

Fuel from the pump can be used directly with four-stroke fuel engines. Some two-stroke engines have a separate tank that

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▲ Your hosepipe will spring leaks and become brittle if not packed away properly

automatically mixes oil with the fuel. Check that this tank is full when refuelling and check that the oil is being fed through the pipes because these capillaries can become blocked and blow the engine. In most cases, two-stroke oil will have to be mixed with the petrol being used. Again, it is important to add the correct amount of oil to prevent the motor seizing. As a general guideline, use a one part oil to 20 parts petrol mix ratio (20:1).

Starting petrol-powered engines shouldn't get you sweating. Assuming you have fuel in the tank and you have spark, you will have to ensure fuel is running through the lines. You can remove the fuel pipe feeding the carburettor to check that fuel is coming through. Replace the fuel line and prime the carburettor. If your model has a choke, turn that on while starting and off soon after starting.



Essential hand tools for the garden

Electric and battery-powered tools

These tools require less maintenance. Nicks and visible damage to power cords present a safety risk and it is easy for the user to receive a nasty shock when handling the cable. Ensure that cords are in good condition and repair or replace where necessary.

Cordless battery-powered tools require little maintenance other than inspecting them for damage, keeping them clean and charging the batteries fully after use.

Hand tools

Essential hand tools for the garden include spades, forks, hand forks, trowels, hoes and pruners. Keep them in good condition by cleaning them after use, oiling moving parts, sharpening them regularly and storing them in a safe, dry place. If you do this, they can last for years.

Hosepipe

A garden cannot grow without adequate watering and a hosepipe that has holes in it is the easiest way to waste water. Your hosepipe will spring leaks and become brittle if not packed away properly. Always coil the hose to prevent kinks and traffic damage. Reduce the burden of the chore by fitting an old motor vehicle rim to your wall or purchasing a hose reel for a quick wind up. When you're finished watering, turn off the tap and open the fitting to relieve pressure. Drain your hose before freezing weather arrives, coil it and store indoors during winter. Repeated exposure to freeze-thaw cycles can weaken the hose material. ✖



Electric and battery-powered tools require less maintenance

Make a terrarium

Put that empty vase to good use and spruce up your interior décor in three easy steps

By Gareth Greathead

It took me a while to learn that DIY doesn't need to take long or be complicated to be enjoyable. I pulled in my mother to assist with the planting of this aloe into a vase that wasn't good for much, unless you like those balls that expand when in contact with water. A smaller species of cactus able to grow indoors can also be used.



Tools & materials

- Vase or trifle bowl
- Coke bottle cut in half
- Potting soil
- White clay pebbles

Step-by-step guide

Step 1: Repotting. Remove the plant from its pot and transplant it into your vase. The important thing to remember here is to start with dry soil in the pot and in the 'vase'. This will prevent the roots from being damaged when you break the soil away from around them after you remove the plant from the pot. It will also encourage the roots to take to the new soil. Only water the plant after a few days when the roots have set.



1

Remove the plant from its pot and gently break away excess soil from the roots



2

Fill your vase with potting soil and arrange the clay pebbles around the sides

Project guide



Difficulty: Beginner



Estimated cost: ±R50



Estimated time: 15 minutes



3

Replant and you're done

Step 2: Place potting soil in the vase and position pebbles around the sides so that they are visible from the side. Place the pebbles, sand, stone or coloured gravel around the edges so that it doesn't affect the growth of the plant.

Step 3: When your vase is nearly full, dig a hole in the middle, position the plant and firm the soil around the roots. Then rearrange the soil and pebbles for the desired effect, and you're done. ✨

Semi-arid plants

Water-saving plants don't just help the environment, they're fashionable too

By Gareth Greathead

Water-saving plants are all the rage worldwide, even in the wet climates of the northern hemisphere where they are often grown in greenhouses to maintain a favourable temperature in winter. Owner of The Friendly Plant Craig de Necker says, "Desert plants have adapted to survive long, hot days and cold temperatures at night." Many areas in South Africa have similar climatic conditions, making adequate watering and potting the main criteria to successful growing.

There is no doubt that cacti make for interesting showpieces with their often colourful flowers. Many cacti thrive in indoor environments and require minimal care, making them popular household and office pot plants. Their 'simple' physiology and resilience add further to their popularity. They may be used as décor items and kept in geometric prism terrariums with sharp lines and edgy angles to supplement a minimalist theme. If a softer look is desired, they can be potted in a fish bowl type container or planted in exposed cacti dishes that resemble Zen gardens.

Physiology and origin

Many cacti have lost their leaves and have spines. In addition to protecting against herbivores, the spines help to retain water by reducing airflow and providing shade. Cacti also have a waxy covering that helps to prevent water loss during the day. In the absence of leaves, photosynthesis takes place in the stem at night.

Most cacti are succulents, meaning that they have thickened, fleshy parts adapted to store water. Cacti are often ribbed or fluted, which allows for expansion with the absorption of water. During the dry season, the body of some plants becomes withered as the plant enters dormancy.

Cacti are a member of the plant family Cactaceae comprising 127 genera with

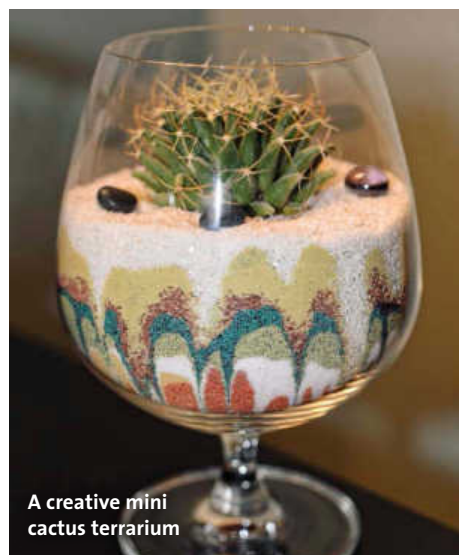
Cacti can be used as décor items kept in prism terrariums



Create a cactus Zen garden



A creative mini cactus terrarium



some 1750 known species of the order *Caryophyllales*. Cacti are indigenous to the Americas, from Patagonia in the south to western Canada in the north. The tallest plant recorded is the *Pachycereus pringlei*, which reaches heights of 19m, and the smallest is *Blossfeldia liliputana*, which grows to only 1cm in diameter at maturity. A fully grown saguaro (*Carnegiea gigantea*) is said to absorb as much as 760 litres of water during a rainstorm

Watering

Cacti, succulents and aloes have root systems that are particularly susceptible to root rot.

In the wild, some of these plants only get water during the rainy season, while in other places, rainfall or moist conditions are maintained year-round. "Cacti are very hardy plants and mimicking these conditions exactly isn't normally necessary as plants are able to adapt to existing environmental conditions to varying degrees. Overwatering of plants is most common and it's better to underwater than to overwater."

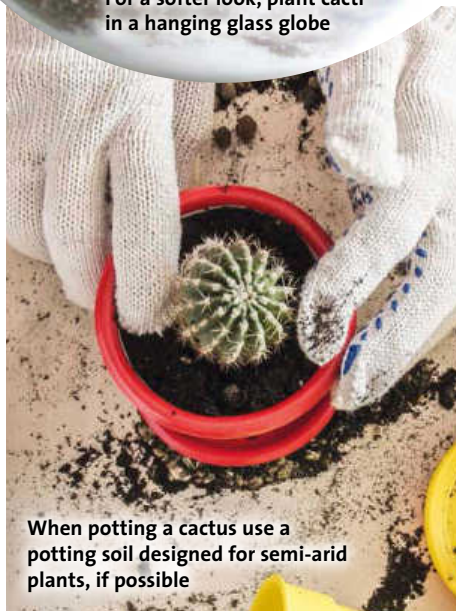
Desert plants require very limited water during the colder months. At times, these plants will wither and look as if they are dying, but revive as soon as they are watered in spring.

Although synonymous with desert conditions, there are cacti that grow in lush tropical regions such as Mexico, South America and some Caribbean islands. These plants are generally referred to as rainforest cacti. Rainforest varieties grow all year round and prefer a slightly moist soil.

As a general rule, the soil should be completely dry before watering. Cacti prefer neutral pH water given at room temperature, with rainwater suggested by some, but tap water is perfectly acceptable.



For a softer look, plant cacti in a hanging glass globe



When potting a cactus use a potting soil designed for semi-arid plants, if possible

Potting

The soil in which a cactus is planted plays just as an important role as providing the plant with the correct amount of water. Many species of cactus originate from the desert regions of North America such as the Nevada Desert, which has led to the development of shallow roots systems designed to absorb as much water from the permeable desert soil as possible before it sinks into the water table below. This adaptation makes cacti especially



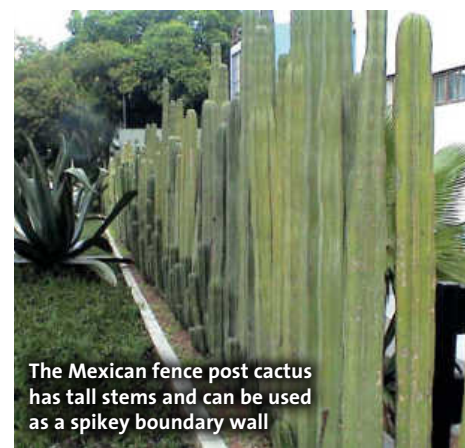
Tip

Cacti with thinner, more slender leaves will store less water and require more regular watering.

prone to root rot where there is insufficient drainage. This means that you will need a soil mixture that drains water away from the roots fairly quickly.

If available, purchase a potting soil designed for use with cacti and semi-arid plants, otherwise normal potting soil is fine. Then, add what is known as a soilless non-nutritive media such as clay pebbles, perlite or peat moss. "Often, soilless media may be supplemented by adding compost as it tends not to hold water and aerates the soil. You can also add builders sand or gravel to increase the amount of air around the roots."

Repotting of growing cacti into a larger pot must be done when both soils are fully dry. This will prevent the fragile roots from breaking, which increases the possibility of root rot. The addition of gravel above the surface of the soil helps to retain a certain amount of moisture needed with some plants.



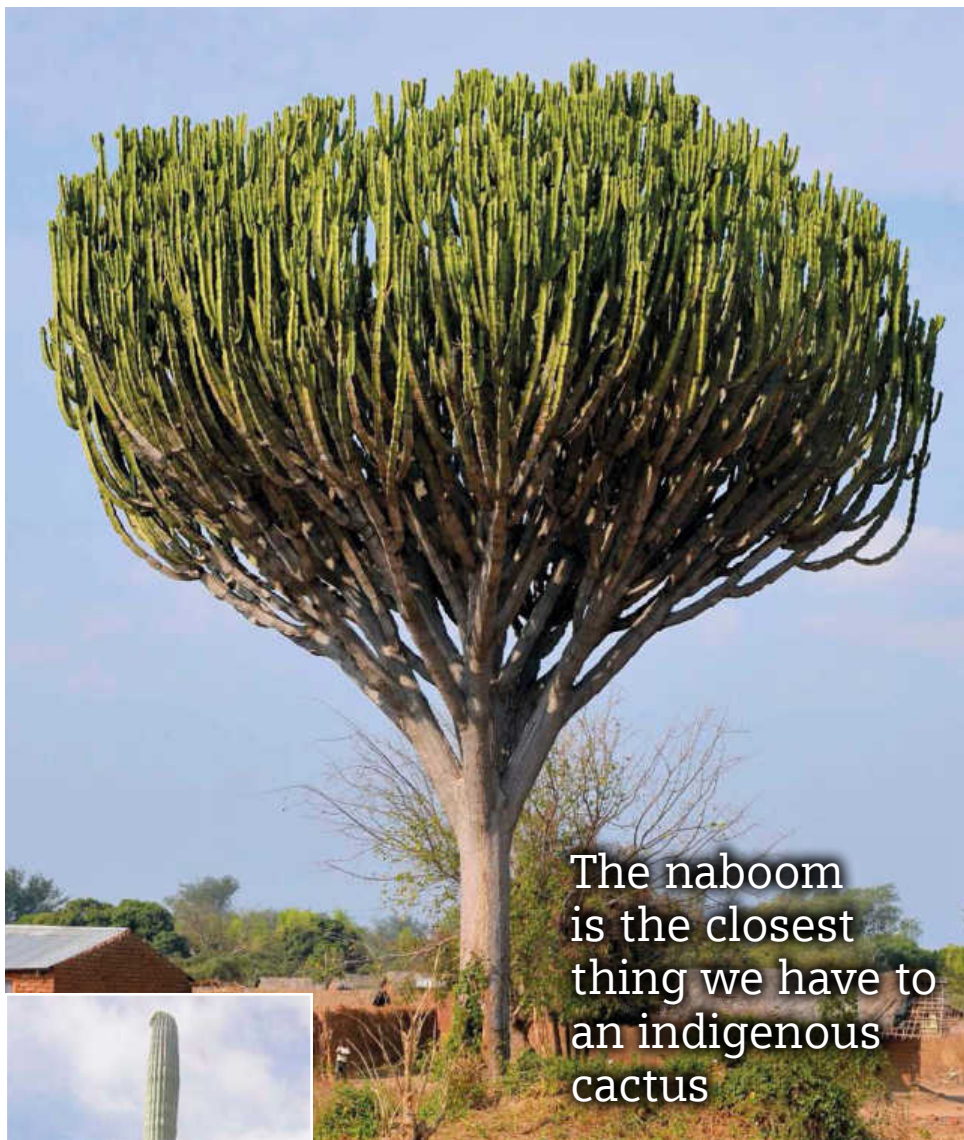
The Mexican fence post cactus has tall stems and can be used as a spikey boundary wall

Cacti for the garden

The **naboom** (*Euphorbia* spp.) is indigenous to South Africa and while not technically a cactus, it is about the closest thing we have to an indigenous cactus. It can be found naturally throughout KwaZulu-Natal, Swaziland, Limpopo, Gauteng, North West, Mozambique, Zimbabwe and further into tropical Africa.

This plant is easy to grow and makes a wonderful addition to a succulent garden or rockery. It does best in full sun and needs very little water, so can therefore withstand periods of drought. Note: The latex of this tree is extremely toxic and can cause severe skin irritations, blindness and severe illness to humans and animals if swallowed. Some say that cattle driven through these plants can be so severely affected that they have to be put down. At the same time, it is said to be used by the Venda and Sotho people as a cure for cancer. Locals also use the branches as a form of fish poison in South Africa and Zimbabwe.

Ironically, the queen of the night or Peruvian apple cactus (*Cereus jamacaru*) is sometimes confused with the indigenous naboom as it also has succulent stems and lateral ribs. The queen of the night is one of the only cacti to be classified as a Category 1 weed under the Conservation of Natural Resources Act in South Africa, which means that you are obliged by law to control the plant by means of eradication where possible. The distinguishing factor is that the naboom has a more distinct main stem. The stems are also more deeply indented, the spines occur in pairs, the flowers are small and inconspicuous and the plant exudes a toxic, milky white latex when wounded. "While there aren't many species of cactus that have become a problem locally, plants are added to the list from time to time. To find out more about the status of any plant, visit www.SANBI.org.za"



The naboom is the closest thing we have to an indigenous cactus



Giant saguaro is a very large cactus with a rightfully earned name. The branches look like outstretched arms and it is a good plant for a corner of the garden.

Fairy castle (*Cereus tetragonus*) grows in towers, with some branches shorter than others. It is a good plant to use as a decorative security fence, but it can also be potted.



Cacti for indoors

"While virtually all cacti can grow outside in South Africa, only some species are able to grow inside because of the limited light. Also, be careful when selecting a cactus for indoors because what is small now sometimes grows into a massive plant over time."

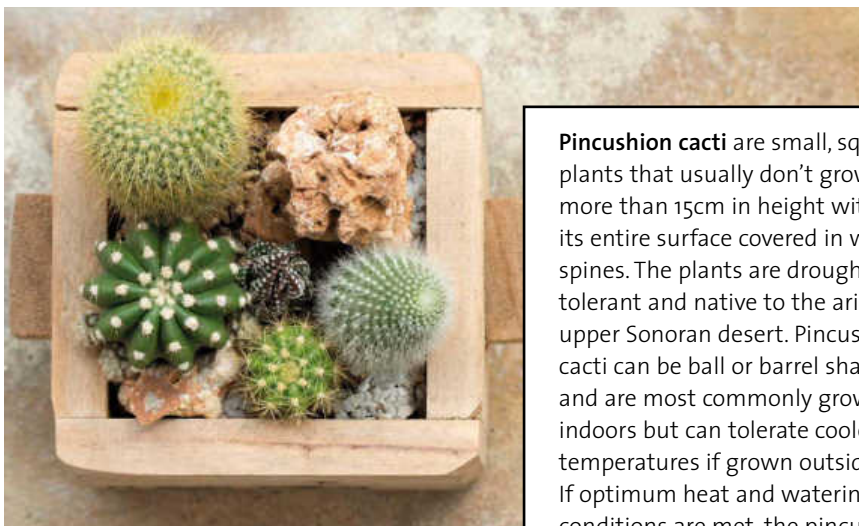


Beaver-tail or prickly pear cactus

(*Opuntia basilaris*) is found in southwest United States. It is a medium-sized to small prickly pear cactus, depending on variety, growing to about 60cm tall, with pink to rose coloured flowers. A single plant may consist of hundreds of fleshy, flattened pads growing to a length of 14cm and are maximum 10cm wide and 1 to 1.5cm thick. They are typically spineless, but have instead many small barbed bristles, called glochids, that easily penetrate the skin.



Rainbow hedgehog makes a perfect houseplant due to its vibrant magenta to pink colour. It grows in clumps of oval shapes with flowers on the head.



Pincushion cacti are small, squat plants that usually don't grow more than 15cm in height with its entire surface covered in white spines. The plants are drought tolerant and native to the arid upper Sonoran desert. Pincushion cacti can be ball or barrel shaped and are most commonly grown indoors but can tolerate cooler temperatures if grown outside. If optimum heat and watering conditions are met, the pincushion cactus may reward you with flowers in spring.



Ball cactus is shaped like a perfectly round, thorny ball. It grows in clusters and makes a good decorative houseplant. It does not like direct sunlight and grows better in shade.

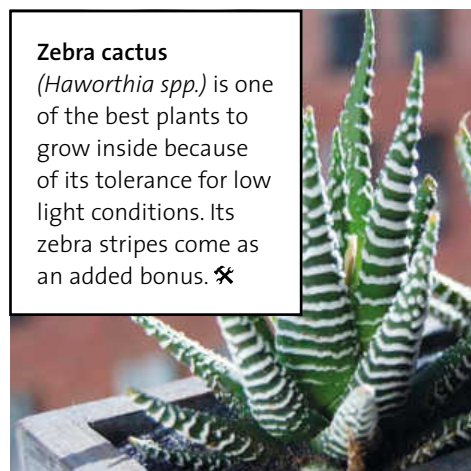
Mistletoe cactus (*Rhipsalis baccifera*)

is found throughout the tropics of Africa and is considered naturally occurring, but it is theorised that it crossed the Atlantic Ocean on European ships trading between South America and Africa. This tropical succulent is indigenous to rainforests in warm regions and can be found in Florida, Mexico and Brazil. Surprisingly, growing rhipsalis requires shade to partial shade. While most cacti are found in hot, sunny, arid zones, mistletoe cactus is unique in its requirements for moisture and dim light. It has pencil thin succulent stems that may reach 1.8m in length. The thick skin of the stem does not produce thorns, but there are almost imperceptible bumps on the surface of the plant. This plant is easy to grow and has minimal needs. It is perfect for hanging in a pot in a northern or western window.






Zebra cactus

(*Haworthia spp.*) is one of the best plants to grow inside because of its tolerance for low light conditions. Its zebra stripes come as an added bonus. ✂



Forge your own path

Project guide

-  Difficulty: Intermediate
-  Estimated cost: ±R300
-  Estimated time: 2 hours

Cast your own concrete stepping stones in any shape and add countless patterns

By Gareth Greathead



Tools & materials

- Bag of cement
- Building sand
- Trowel
- Spade
- Wheelbarrow
- Fresh water

Step-by-step guide

Step 1: In order to make a cast you need a mould, and this is where you can be creative. I used a plastic tub to get the desired shape and a bath mat to create a pattern on top of the stone. The bath mat was cut to size and placed at the bottom of the tub in preparation.

Since making my stepping stones, I have concluded that it would have been easier to lay down profiled half round strips around the circumference of the tub. This shape would have been transferred onto the edges of the stepping stones, creating a more stylish look. I think this simple technique is better and reduces the possibility of patterns moving out of place when pouring.



1

We used a bath mat to create a pattern on top of the stone



2

The concrete we used had to be mixed with two parts building sand



3

Mix the dry materials together before adding water to the hole made in the middle



4

A wheelbarrow comes in handy when mixing a small amount of cement



5

Your mould must be coated with a release agent before pouring



6

Work the cement into the mould and smooth the top with a trowel

each material before mixing these together and making a hole in the middle. Water was added into the hole to make mixing easier.

The amount of water you add is more a case of adding water until achieving a consistency of dough. It should not be runny, but hold its shape when squeezed into a ball. Adding too much water will reduce the strength of the stone and too little will increase the likelihood of voids or air bubbles, while also making the cement difficult to work with.

Step 3: Before pouring your concrete into the mould, coat the mould with a release agent – I used cooking oil and a paintbrush to do this.

Step 4: Use your spade to transfer an amount of mixed cement into your mould. I decided to use a spade to 'chop' up the mixture inside the mould in an attempt to remove voids that may have been present. After that, I used the spade and later a putty scraper to flatten out the bottom of the cast. A trowel would have worked far better, but I couldn't find mine when getting my things together.

Step 5: The cast must be left to dry for four days before it is removed from the mould. Concrete sets hard through the chemical reaction that takes place after water has been added. During the process, use a spray bottle to mist water over the top of the mould to maintain a favourable moisture content on the surface of the cement. ✕

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7

Leave the stepping stone in the mould for four days to allow it to dry before removing it



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BRIGHT IDEAS

Readers share their time-saving, space-saving or innovative ideas

Perfect wheels on a table saw

WINNING LETTER

Make an easy jig to cut wooden wheels on your table saw:

Step 1: Make a sled that fits your saw. I used chipboard and hard wood for the runner.

Step 2: Drill a pilot hole in the board so that a 4.5mm machine screw will fit tightly through the bottom of the sled. It must be countersunk so that the screw head does not protrude from the surface. The thickness of the screw used will depend on your choice of the axle for the wheel.

Step 3: The distance between the cutting edge and the spindle is half the diameter of the wheel. Different holes can be made for different size wheels.

Step 4: Draw a circle using a compass to give you an idea of where the centre of the wheel will be and how the wheels will fit on your sled.

Step 5: Drill a 5mm hole in the centre of the block of wood and place it on your sled. Cut the wood little by little, rotating it around the spindle.

With a little patience, you can make a perfectly round wheel. The smaller the wheel, the more careful you must be not to cut your fingers. I do the rough cutting on the table saw and finishing on the lathe with sandpaper.



Make a sled



Insert a countersink machine screw from below



Completed project



Drill a pilot hole in a block of wood and screw it onto the sled

Chris Erasmus, De Doorns

Keep water at hand

Let me start by saying that I really enjoy *The Home Handyman*. Here is something for 'Bright Ideas': Every now and then I need just a few drops of water such as when drilling metal or moistening wood fillers. The tap is at the back of the workshop, which means I have to go through a door and a locked gate to fetch a few drops – an unnecessary hassle. A handy solution is to always have water ready in a little plastic bottle with a tiny hole. The water does not evaporate, so it will be available for a long time. Another advantage is that it does not spill if you knock it over. It is always ready for use.

Chris Erasmus, De Doorns



Congratulations to Chris Erasmus who wins a STSM1510 Stanley 1 500W Compound Mitre Saw



Solar bricks illuminate dark areas of your driveway, garden or path for both practical and decorative purposes

By Aarifah Nosarka

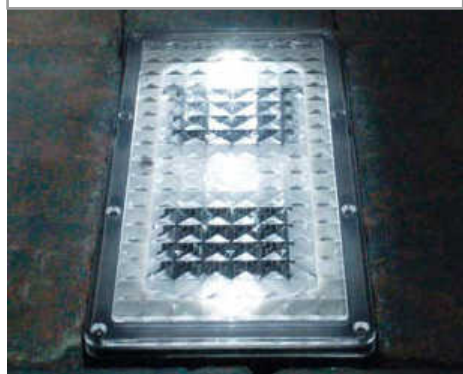
Light your path

Solar lights use photovoltaic cells that absorb sunlight during the day. The energy collected is stored in rechargeable batteries which power the LEDs inside the solar bricks at night. Since solar lights are powered by the sun, they are only useful in areas that receive sunlight and require more than five hours of per day.



Tip!

Solar lights do not have a high light output. The brightness of solar lights is determined by the wattage and quality of individual lights.



Benefits of solar lights include affordability and they can be installed safely yourself. Solar powered lights are easily relocated and do not require electrical wiring or connections.

Solar bricks

A convenient and effective form of solar lighting is solar bricks, which are made up of LED cells encased in a plastic covering that is able to withstand foot and light car traffic. They can be laid into the masonry of a brick sidewalk, driveway or patio to accent brick wall perimeters or add ambient light to landscaping features.

Solar bricks are designed to replace regular brick and paving stones. Good quality solar bricks are able to collect a full charge on a moderately cloudy day. Overcast and dark days can, however, affect light output.

Some solar bricks have control systems that allow you to change their colour or turn them on and off as needed. The cost of solar bricks varies depending on the type of brick you require. The price of the brick may seem steep, but bear in mind that once installed, there are no operating costs.

Types of lighting

- Ambient lighting provides overall lighting and sets the mood in the space it lights up, just as the name suggests.
- Accent lighting is more for decorative purposes and is used to highlight various features. This type of lighting works hand in hand with ambient lighting to reinforce a particular style.

Installation

To install solar bricks in place of existing bricks, follow these steps:

- Remove the existing bricks you wish to replace using a trowel and bolster. Insert the edges of the tools into the joints and prise the brick upward. Do this along the shorter ends of the brick. Work your way along the brick and longer sides. Keep jiggling it constantly so that it loosens and can be removed.
- Place the solar brick paver in position.
- You can use a mortar paste to bind each solar brick. ✂

**Project guide**

Difficulty: Intermediate



Estimated cost: ±R350



Estimated time: ±7 hours

Make a handy three-tier shelf

Take care of some of your storage needs at home by making this versatile three-tier shelf with a wooden box

By Aarifah Nosarka

The Home Handyman's Candida Giambo-Kruger and I headed off to the Vermont Sales workshop in Midrand once again to work on crafting wooden projects. It was a little different this time as we usually work separately and make the same project, but we decided to do two totally different projects for this issue of the magazine (see other project on page 46).

Component specifications

I have to admit, my first experience using a mitre saw was profoundly startling. Greg de Villiers talked me through the process of using this tool – he started by explaining how harmless it is if used correctly. “Power up the mitre saw and once the blade spins at full swing, lower it slowly through the length of wood until the cut is complete. Let the blade completely stop after each cut before lifting it up.”

For power tool beginners, the sound, weight and application of power tools can be daunting, but the old adage rings



Tools & materials

- Two 1m-long M8 threaded rods
- Fourteen M8 nuts
- Two 25mm butt hinges
- Eight 3 x 12mm chipboard screws for hinges
- Three 32mm cup hooks
- Chalk paint (colour of choice)
- Chalk paint (clear wax)
- Mitre saw
- Pocket hole jig
- Drill bits: 8mm brad point and 12mm spade bit
- Drill
- Ruler
- Pencil

- Set the end stop on the mitre saw to 575mm and cut the length for the top bracket (part A). This will be 575mm x 100mm x 20mm.
- When cutting the lengths for the two bottom shelves (part C), position the end stop of the mitre saw at 332mm. Cut two lengths using the 140mm-wide length of wood. The final dimensions are 332mm x 140mm x 20mm.
- To cut the lid (part F), position the end stop on the mitre saw to 200mm. In addition to the lid, you need to cut three sides that will form the wooden box. Make four cuts in the 100mm-wide length and set the end stop to 80mm. The four pieces will be cut to 100mm x 80mm x 20mm.



Cutting list

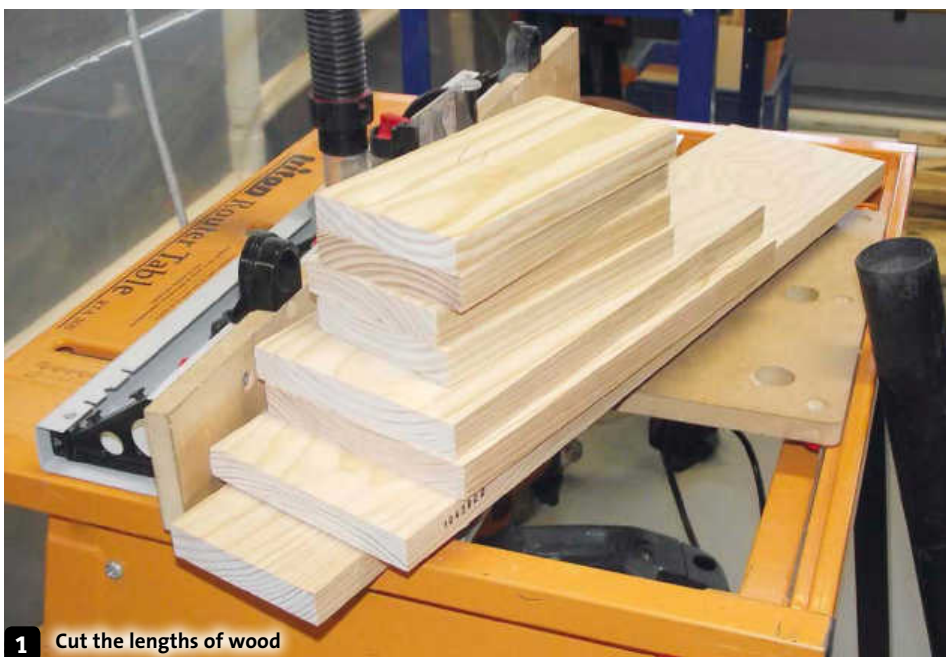
We used 20mm-thick pine for this project. We started with two lengths of pine – one was 1.8m x 140mm for the top and bottom shelves, and the other was 1.8m x 100mm for the top bracket, box sides and box ends.

Use the 1.8m x 100mm x 20mm to cut:

- One top bracket: 576mm x 100mm x 20mm (part A)
- Four 200mm x 100mm x 20mm pieces for the box sides and lid (part F)
- Two box ends: 80mm x 80mm x 20mm (part G)

Use the 1.8m x 140mm x 20mm to cut:

- One top shelf: 600mm x 140mm x 20mm (part B)
- Two bottom shelves: 332mm x 140mm x 20mm (part C)



1 Cut the lengths of wood

true, “Practice does indeed make perfect”. Greg says that tackling this three-tier shelf project is a great way for beginners to start learning how to use power tools and various accessories.

Step-by-step guide

Step 1: Use a mitre saw to cross-cut each length of wood

- Set the end stop on the mitre saw to 600mm. This length will be your top shelf (part B) and should be 600mm 100mm x 20mm when you have finished.

Mitre saw safety

- Keep your fingers a few centimetres away from the path of the blade. There are saws with visible lines that indicate danger zones.
- Always wear safety glasses and ear protection when operating a saw.
- Never reach under the blade while it is spinning.



2 Measure and mark up the positions for the holes

- Take two of the F parts that have already been cut and clamp each up against the fence. Set the mitre saw to rip away 20mm from the sides of each 100mm length before making two cuts. Reposition and clamp the two 100mm x 80mm x 20mm lengths to make 20mm cross-cuts to achieve two 80mm x 80mm x 20mm pieces.

Step 2: Mark all the pieces of wood for drilling holes

The Vermont Sales workshop has a bench-top drill press that offers the advantage of drilling holes exactly where they should be. However, a lack of space or a need for portability can make a conventional drill press impractical. In that case, a drill stand to which a regular hand drill can be fitted will do the same job. You need to drill holes into the top bracket, top shelf and two bottom shelf lengths:

- Measure and mark 32mm in from the end of the top and bottom of the bracket and shelves.



Tip

If you use a drill stand with an electric drill, add a fence jig for drilling accuracy. The fence jig will assist in drilling the 8mm hole in the same place on the opposite end of every shelf and on the bracket.



3 Drill press the holes with a brad point bit to drill accurately



4 The result after using the Forstner bit



Note

The top bracket and lid of the box can also be profiled.

- Drill 20mm flat-bottomed holes at 8mm depth. I used a brad point drill bit followed by a Forstner (spade) drill bit to bore a clean hole with a virtually flat bottom.
- Clamp a fence jig onto the drill press, positioning it so the centre of the drill bit is perfectly aligned.

Step 3: Round the wooden lengths

- A router table with a fitted plunge router is best suited for this application. To add detail to the front and sides of each shelf, we used a roundover bit. You can choose which bit you want to use for the profile you want on your shelves and then profile the top of parts A, B and C.

Step 4: Trim the M8 threaded rods

- Cut the lengths of threaded rod, leaving two 150mm and four 270mm trimmed rods. There are many ways to cut threaded rods. In this instance, a cut-off machine was used to accurately cut the lengths needed, but a hacksaw will also work.
- After cutting the threaded rods, remove the burrs with sandpaper or an orbital sander so the nuts turn easily on both ends.



Tip

Placing a nut over the threaded rod before cutting and removing it will help to fix threads that may have been damaged.

Drill pocket holes to secure the lengths

- Drill three pocket holes to attach the top bracket (A) to the top shelf (B). The settings on the Kreg Pocket Hole System were set for 20mm thickness.
- Once the holes are made, insert 1¼ inch coarse thread screws to secure the lengths to each other.



5 Trimming the threaded rods



6 Drill pocket holes to secure the lengths



Tip

Pocket holes can be plugged using paint grade plugs.

Step 6: Make the box using parts F and G

- Before gluing or attaching the pieces, play around with each length to see exactly how your box will fit together. Do this by laying down one length of wood to form the bottom part of the box. Place another length in front of the bottom part and another behind. Fit parts G on the sides to complete formation of the box. Use wood glue and clamps to secure the box.
- Drill two pocket holes through each of the box sides, one securing the back piece and the other securing the front. For additional stability, drill pocket holes and insert screws to the inside of



7 Fit the lengths together to form a box

the box which connects the back length of the box to the bottom length.

- Attach the box lid by adding two 25mm hinges. Measure 25mm from the left and right side and insert the hinges, followed by 3.0 x 12mm screws to secure and enable opening and closing of the lid.

Step 7: Assemble all the parts

- Sand all the lengths for a smooth finish; first with 80-grit (medium) and then 120-grit (fine) sandpaper.
- Insert two of the 270mm threaded rods through the left side front and back holes, and secure with nuts. Add the last two 270mm rods through the centre front and back holes. These rods will run through and secure the top shelf (B) and both C parts. Place the two 150mm rods through the holes on the far right side.
- Fit three cup hooks underneath the short shelf by piercing and threading each into the wood by hand. These hooks can be used to hang keys or clothing, depending on what you want to use your shelf for.

Step 8: Finishing touches

- My idea of a perfect finishing touch for this project was to apply Annie Sloan's Paris Grey chalk paint, which



Tip

Secure nuts to the ends of the threaded rods using a 13mm combination spanner.

complements the colour of the rods that hold together the shelves.

- Ensure your tin of paint is mixed properly.
- Start by painting one section at a time.
- Leave the first coat to dry before applying a second coat. For optimum results, ensure the final strokes are painted in the direction of the wood grain.
- Apply clear paint wax to seal the paint. The wax not only seals but protects the piece. ✖



8 Glue and clamp the box



9 Assembling parts to complete the shelf



Tip

If you want to create a distressed look, do this after applying the clear wax. Rub a medium-grade piece of sandpaper or sanding block across the sections that would naturally be distressed, such as edges, corners and tops. Wipe using a damp cloth and your distressed piece is complete.



The mighty oak

Oak trees are distinctive due to their impressive size, which allows them to dominate landscapes in certain areas

By Aarifah Nosarka

Did you know that oak trees are more likely to be struck by lightning than other trees?

This is because oaks are usually taller than other trees and lightning generally strikes the tallest object.

‘Oak’ is the common name for many acorn-producing trees and shrubs, all of which are members of the beech, or *Fagaceae*, family. Oak trees are classified as members of the genus *Quercus*, which is Latin for ‘fine tree’.

The oak family is a diverse group of trees and shrubs influenced by climatic and environmental changes. In warmer climates, oaks are evergreens and are often

used as ornamental trees in parks. In colder climates, the leaves fall during autumn. Varieties of oak are scarce in forests or areas with short summer seasons and long winters, including Canada, Siberia and northern Europe.

Oak trees are indigenous to North America, but are now found in most parts of the world. They grow in China, Japan and the Himalayas, most of Europe and in parts of South America. They do not grow in extremely cold places like Alaska. There are more than 600 different species of oak. More than half of the 600 species are indigenous to North America, with approximately 60 varieties growing north of Mexico.



Oak trees are often found in parks across the world

In South Africa, the history of the oak tree dates back to Jan van Riebeeck's time. When the first European settlers came to South Africa, there was too little timber to establish their colonies. It is believed that Jan van Riebeeck introduced oak trees to South Africa after his arrival in 1652.

Oak trees are easily identified by their rough-textured, dark green leaves that form wavy edges. In some species, leaf arrangements are spiral with lobed margins, while in others, they are serrated. The leaves are attached to the branches at the base, with almost no stalk. Blossoms appear in spring, producing cylindrical clusters of flowers known as catkins.

Uses

Timber from oak is prized for its strength, durability and elasticity. In the past, oak timber was used for building ships. Oak wood is still used for furniture- making, flooring, timber frame buildings and veneer production. The barrels used for wines, sherry and spirits such as Irish, Scotch and Bourbon whiskey are made from American white oak (*Quercus alba*) and European oak (*Quercus robur*). Oak is imported to South Africa mainly in a rustic grade. It is the timber of choice for wine cellars and

tasting rooms. The bark of certain oak species in Portugal and Spain are used to produce cork.

One oak tree can produce thousands of acorns in a single year. Some trees produce small acorns while others produce larger ones. This nut contains a seed encased in the shell and is made up of tissue filled with nutrients. Its lower end comprises a root and stem. Many species of birds and animals eat acorns, and they serve as the main food source for some animals.



▲ Barrels are often made from American white oak

Properties

Oak wood is durable, heavy and light in coloured. It has large pores and prominent rings that give it a prominent grain and coarse texture. Grain appearance will differ depending on how the boards were sawed. For example, rift-sawed boards will display a tighter grain pattern, while plain-sawed boards exhibit a plumed grain.

Categories

Oaks are divided into two basic categories:

Red oak

This type is hard and heavy with medium bending strength. This wood is ideal for steam bending. It is easy to stain and polish, and is easily worked with both hand and power tools. Red oak has been



described as moderately easy to treat using preservatives; however, it dries slowly and has a high shrinkage rate.

White oak

This is more durable than red oak and works well with nailing, sawing and sanding. It absorbs finishes better than red oak. This timber is easy to polish, has longer rays than red oak and occasionally has swirls and burls after it has been worked on.

Some oak facts

- In the year 2004, the oak was officially declared as the National Tree of the United States of America, symbolising the nation's strength.
- Oak trees start producing acorns after 20 years. Some trees take up to 50 years to produce the first crop. Yearly production of acorns in a mature tree may reach around 2 200 acorns per year.
- Oak wood chips are used for smoking fish, meat, cheese and other foods. The oak bark is rich in tannin and is used for tanning leather.
- The white oak is known for the medicinal properties found in the bark of the tree. Dried bark is used to prepare several medical formulations.
- Professional drums were made from Japanese oak by Yamaha Drums. These drums produce a brighter and louder tone compared to regular drums because of the rough, hard surface of the oak. ✖





Woodworking for all

Proud father and avid DIY woodworker, Peter Alkema is determined to grow the hobby

By Gareth Greathead

In addition to holding down a full-time job in the fast paced world of IT, Peter Alkema somehow found the time to write a book called *Woodworking For Everyone*. The book features 13 projects completed by Peter, with some design input from his wife and help from his little ones. Peter's goal when writing the book was to demonstrate how anyone, no matter their skill set or how busy they are, can take up woodworking as a hobby.

Peter said that the signing of the contract with the book publisher meant he had to meet his obligations and this motivated him to stay on schedule. "The only way to get something done is to give yourself a deadline and stick to it. The book took me three years to complete despite having a few children in the process."

Getting the entire family involved was the focus. "My dad initiated my interest in DIY and woodworking from a young age. I have been told how I sat in my pram watching him with interest as he worked around the house." Later, when choosing his senior subjects in high school, Peter decided to drop biology and take woodworking and technical drawing instead. "This was not seen as a wise choice by all because



Peter demonstrates how anyone can take up woodworking as a hobby

it is a standard grade subject, which impacts negatively on your final results. The school I went to has since stopped offering woodworking as a subject and unfortunately careers as tradespeople are not supported."

Inspired by family

There is a type of satisfaction gained from making something yourself and gifting it to someone you love. "I still remember the go-kart my late father built me – it was the best in the neighbourhood. I used to go around telling other kids, 'My dad made this for me'. It is only since becoming a father that I realise the satisfaction my father must have enjoyed from seeing his son's joy in using something he lovingly built. When I got older, I began to help my father with tasks around the home and in the workshop."

"Now that I'm a father of five, I make it a priority to involve my children in all the DIY I do. I believe getting the children involved contributes positively to their cognitive development. Children's confidence builds with positive reinforcement, affection and affirmation. It also helps to create a family dynamic where skills are transferred and the younger children learn from their older siblings."

DIY – don't buy

Peter says that in IT the thinking is conceptual, but woodworking provides an element of touch and feel. He enjoys the freedom to think structurally and visualise how things will fit together. "There is a bit of me in every project and all of the projects I have done have found a place in our home. Somewhere along the line we needed a baby compactum and I wasn't able to make it at the time. We bought one from a shop and before very long the whole thing fell apart, whereas the things I have made have lasted a long time."



The children enjoy getting involved in DIY



Peter is the father of five children, who are his DIY helpers

Skills development

Instead of aiming for perfection, Peter admittedly makes compromises in order to save time. All of his projects are painted and none are perfect, with screw holes filled and makeshift repairs hidden from view. Also, with a full-time job and five children, including two pairs of twins, it wasn't possible to spend hours completing projects. "Many of my projects were completed in 10-minute intervals spread over several evenings."

Organisation is important when working like this because you don't want to waste half your time looking for tools. "My dad taught me how to look after and store my tools neatly for use the next day. He also taught me to buy a new tool and find a way to use that tool for the next project. This ensures development of your skill-set and improvement of your completed projects."

South Africa's first bookazine

Peter's most recent venture has been the release of South Africa's first bookazine with the same name as the book. With cognisance of the decline of readers of books internationally, it is hoped that information in a magazine type format will attract younger readers and encourage people to work with their hands. ✂



The bunk bed Peter made

The only thing Peter won't attempt is electrical work, but he will take on pretty much anything else. "Blocked drains are common and instead of calling in a plumber I decided to buy all the equipment needed. At the end of the day, I landed up with drain rods, plungers and everything else with the prospect of saving money in the future."

Get a grip on files and rasps

Familiarise yourself with these frequently used finishing tools

By Aarifah Nosarka

Both files and rasps are used for smoothing, cutting or removing small amounts of material from wood and plastic. Files can be used on metal, while rasps, which are considered a type of file, are limited for use on softer materials. These hand tools are similar in appearance, but each provides a slightly different result: Files offer a more refined finish, while rasps are generally used for more aggressive work.

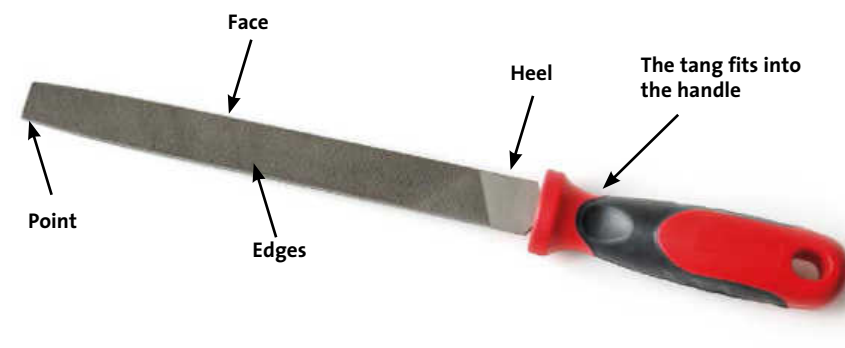
Before using either a rasp or file, consider the material you are going to work with and the type of finish you want to achieve. It is, after all, essential to use the right file or rasp to achieve your desired result. Take into account the tool's shape and size, and when it comes to files, also the coarseness. Bear in mind that the size of a file is related to its coarseness – larger files remove more stock, whereas smaller files produce a finer finish.



Tip!

Consider the file size and grade of its cut in relation to the amount of material you want to remove and fineness you desire.

Parts of a file



Distinctions between files and rasps

Files

Files feature teeth that look like lines and are situated diagonally. These shaping tools are made of hardened steel and used to remove burrs or rough spots.

The parts of a file

Tang: This is the part of the file that fits into the handle. There are files without handles; however, it is best to have a file with a handle to prevent injury as well as to provide a comfortable grip.

Heel: This part is closest to the tang and can also be described as the shoulder of

the file. There are no teeth found on this section. The heel is basically where the file begins.

Face: This is the large, flat surface of the file where the file teeth are.

Edge: The surfaces between the faces of files are edges.

Point: The end of the file opposite to the tang is called the point or toe. While 'point' is the term commonly used, it is not always pointed and can be completely flat.

Types of files

Single-cut files: These files have one set of teeth, hence the name, and provide a



Files can be used on metal while rasps are for softer materials



Safety tip!

Never use a file without a tight-fitting handle as it can result in serious injury.

smooth finish. When working with this type of file, you need to apply light pressure.

Double-cut files: These have two sets of diagonal rows of teeth and are used for more aggressive filing, smoothing wood, shaping or rust removal on metal. The first set of teeth is known as the overcut, while the second is called the upcut and is finer than the overcut. Apply heavier pressure when using this type of file, which removes material faster than single-cut files.

Rasps

These have individually raised teeth placed in various patterns along the rasp body. Random placing of the teeth provides a rougher, faster cut. The primary use of a rasp is the quick removal of stock.

There are rasp classifications known as wood, cabinet and horse rasps, as well as combinations known as a shoe rasps and wood craft rasps.

Three filing techniques

Draw filing

A technique used with single-cut files. Both hands are used to hold the file at each of the ends while pushing and drawing the file across the workpiece.

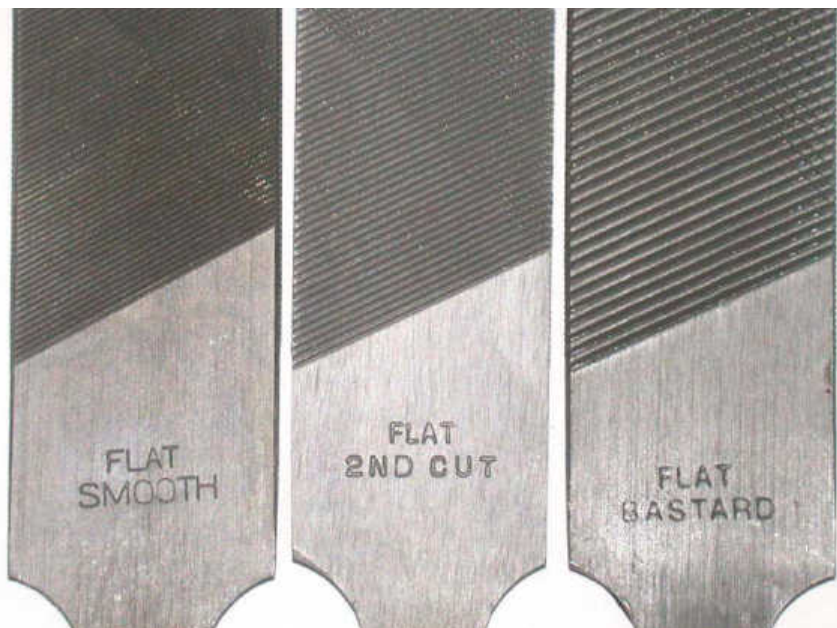
Cross filing

Involves pushing the file lengthwise, straight ahead or slightly diagonally across the workpiece, and is implemented when finishing, shaping or sharpening materials.

Lathe filing

Stroking the file against work done, using a lathe. The file is held at an angle to the right and moved with a slow sliding motion from left to right. This technique is used to shape, polish or finish cylindrical objects.

Double-cut files have two sets of diagonal rows of teeth for aggressive filing



File and rasp grades

Coarseness is determined by how rough or smooth the face of the hand tool is. The grades below are broken down from finest to coarsest.

Files

- Smooth cut (fine grade).
- Second or medium cut (slightly smoother finish).
- Bastard cut (coarsest grade).

Rasps

- Bastard cut (unlike with files, the rasp bastard cut is the finest grade).
- Cabinet cut (also known as medium).
- Wood cut.

Using a rasp

When using a rasp, hold the handle in your dominant hand and the tip of the tool with your other hand. While pushing the rasp along the area you are shaping, ensure that you push forwards instead of downwards.

Rasps have individually raised teeth in various patterns



Tip!

A simple way to figure out which direction to push the rasp when shaping curves is by aligning the board so the grain runs horizontally. Now implement a downhill push in relation to the curve.





A wire brush or file card can be used to clean these hand tools



A slotted rack to store and protect files

Care and storage

Proper care and technique is essential to safe and effective use of rasps and files:

- Always work in a well-ventilated area and use respiratory protection if necessary.
- The key thing to remember is that a file cuts on the push stroke. Do not apply pressure on the draw (pull) stroke as this can damage the file teeth, blunt them or cause them to break off.
- Clean debris from the teeth after each use.
- The term 'pinning' is used to describe file teeth that are clogged with debris. When there is clogging, scratches can appear on the workpiece and it can damage the file teeth by either resulting in a blunt or damaged tool. Rub on chalk or oil the surface to prevent clogging. A wire brush or file card can also be used to clean these hand tools.
- Keep files and rasps in protective sleeves or slotted racks when not in use to prevent the faces from scraping against each other or other tools. ✂

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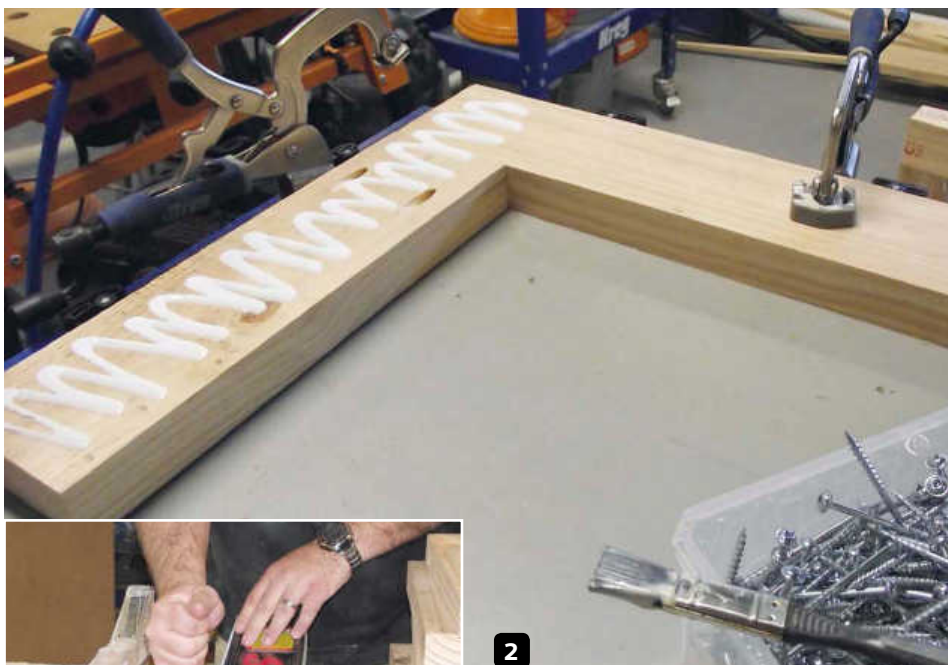
Solid design

Rustic furniture design is all the rage in modern households, and this table is near indestructible too

By Gareth Greathead

While not in her job description as subscriptions manager at *The Home Handyman*, Candida Giambo-Kruger couldn't resist the urge to get involved in woodworking and found great pride in completing more than one project. Product manager at Vermont Sales Greg de Villiers played an important role as a mentor, contributing to her development as a woodworker. Candida says, "It was an absolute pleasure working with Greg, and his patience and ability to find a solution for every problem was admirable."

The design of this table is simple, although somewhat time-consuming, but well worth the effort. As an added bonus, the table can also be used as an ottoman or even a bench in the lounge. After two visits to the Vermont Sales Workshop, the project was eventually completed and transported to Candida's lounge. Soon afterwards, her workmanship was tested after her sliding door at home came crashing down, landing on her table. "Despite the sliding door being smashed to pieces, the table was in one piece with only a few flesh wounds."



1 Greg helped Candida cut the wood to size using a table saw

Method

Step 1: "We used scrap pine planks that had been used during prior demonstrations of pocket-hole 'jig' technology." The first step was cutting the lengths of wood needed. The simple design requires the cutting of shorter and longer 'legs'. The longer legs will be used to separate the U-shaped

2

The design of the table works on the principle of building up the surface of the table by adding layers



3

Each layer was attached to the next with glue, screws and nails

Project guide



Difficulty: Easy



Estimated cost: ±R300



Estimated time: Two days



Tools & materials

- Pocket hole jig
- Pneumatic nailer and compressor
- Sash clamps
- Orbital sander
- Table or mitre saw
- Measuring tape and pencil
- Pocket hole screws/wood screws/ nails
- Cold wood glue



Cutting list

From 100mm x 35mm pine planks, cut:

- Eight 1 200mm pieces
- Eight 500mm pieces
- Eight 600mm pieces

assemblies, which will have an upright as well as a cross-beam cut to the total length of the table. We used a mitre saw for the cross-cuts and the SawStop table saw for ripping.

Step 2: With the pieces cut, it is time to assemble the pieces of wood layer upon layer to build up the table. The first and every second layer to follow have uprights, or what will become table legs, fixed to the cross-beams or tabletop. To do this pocket holes were drilled into the shorter legs and these were screwed and butted to the cross-beams.



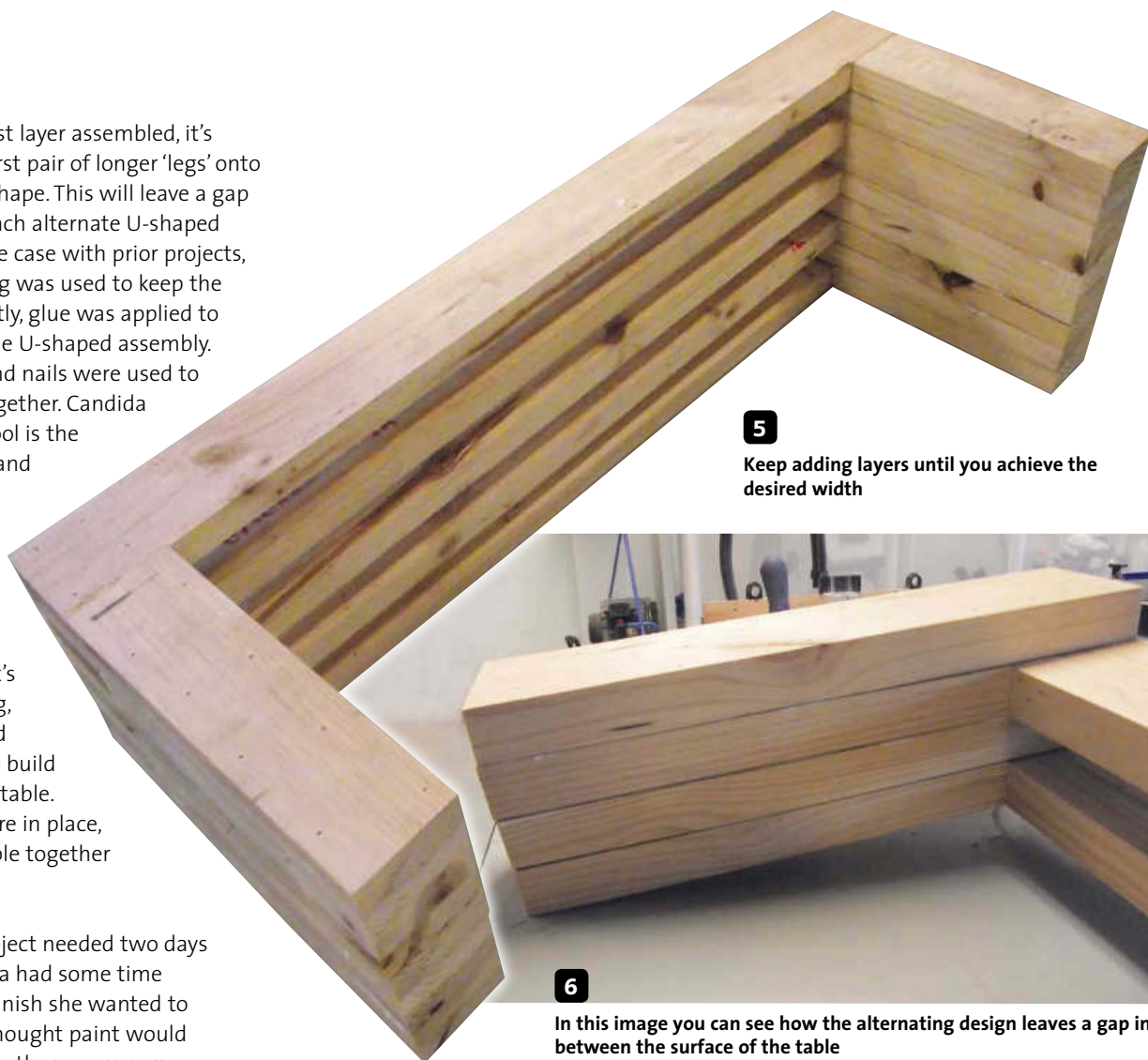
Each layer was attached to the next with glue and the insertion of screws and nails

Step 3: With your first layer assembled, it's time to insert the first pair of longer 'legs' onto each side of the U-shape. This will leave a gap in the tabletop at each alternate U-shaped assembly. As was the case with prior projects, more than one fixing was used to keep the pieces together. Firstly, glue was applied to the leg portion of the U-shaped assembly. After that, screws and nails were used to clamp the pieces together. Candida says her favourite tool is the cordless drill driver, and it was at this stage that Greg had to confiscate it from her hands for obvious reasons.

Step 4: From there it's a case of assembling, gluing, screwing and nailing each layer to build up the width of the table. After all the layers are in place, clamp the entire table together using sash clamps.

Step 5: Since the project needed two days to complete, Candida had some time to think about the finish she wanted to produce. First, she thought paint would be the best option as there were some regulatory stamps as well as a few holes that needed to be filled. After some more sanding of the surfaces, Candida decided to apply a specialty wax which brought out the cross-grain as well as the knots. ✂

As an added bonus, the table can also be used as an ottoman or even a bench in the lounge



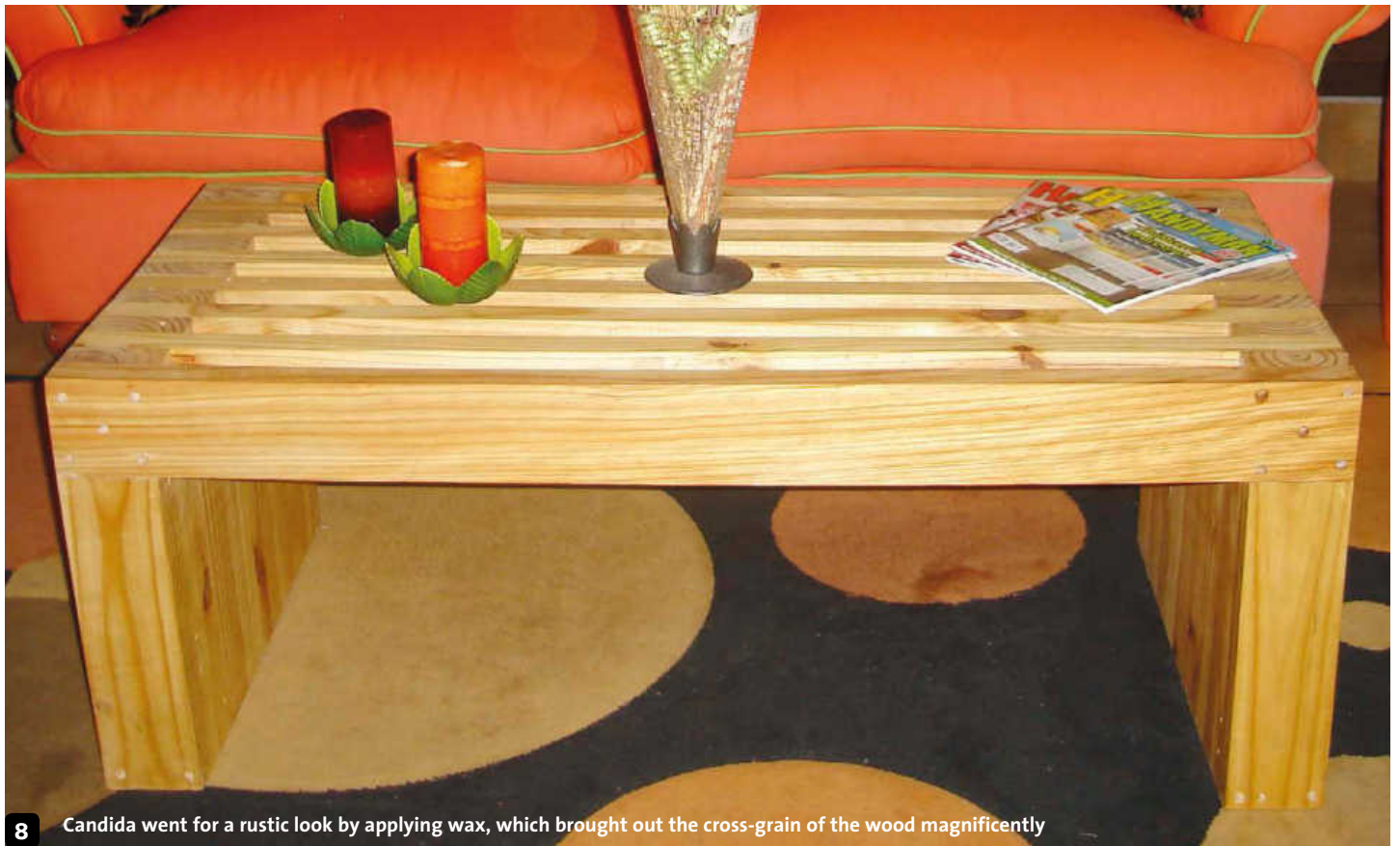
5
Keep adding layers until you achieve the desired width



6
In this image you can see how the alternating design leaves a gap in between the surface of the table



7
After all the layers were assembled, they were clamped overnight to allow the glue to dry



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BOSCH
Invented for life

A hatstand is not only functional, but is also an attractive décor addition to an entrance hall, especially if you can say you made it yourself! Clifford Roberts and Andries Eygelaar show you how

The hatstand is a classic piece of furniture and makes an eye-catching centrepiece for storing hats, coats and umbrellas compared to a simple mounted hook on a wall or behind a door. Classic designs make use of bentwood, but a simple search on Google will reveal a variety of methods that are equally successful.

We used what we had: Pine planks laminated and turned on our lathe for the trunk, old, second-hand steel hooks salvaged from a discarded coat rack and various offcuts for the feet and umbrella ring. This is a fairly simple project, and there are a few shortcuts and tips that can mean the difference between easy and difficult assembly.



Tools

- Drill and bits, including a 25mm Forstner and 12mm router bit
- Jigsaw and circular saw
- Pencil and square ruler
- Tape measure
- G-clamps
- Wood screws
- Cold wood glue
- Sandpaper
- Woodturning lathe and chisels
- Spring bow callipers

Project guide



Difficulty: Intermediate



Estimated cost: ±R200



Estimated time: Two days

Hats off!



Step-by-step guide

Step 1: We began by drawing a basic, life-size plan of the hatstand on a sheet of polystyrene. We found two important considerations in this kind of design. The first relates to stability: A hatstand can become top-heavy when fully laden; the height and number and size of feet are therefore important. Secondly, the length of coats and umbrellas will guide you to your preferred height for this design.

Our trunk measures 1900mm top to toe and comprises planks of SA pine that we laminated using cold wood glue and G-clamps to achieve dimensions of 60 x 60mm. Our wood was not long enough, so we had to assemble in sections using a single 25mm drill and dowel joint. Using a lathe and Forstner bit to create this joint makes for a true fit.



2 Make a template for the feet



1 Begin with a plan. We had to laminate planks to get the right thickness

Once the feet are cut, locate and mark the position where they will meet the trunk. Use a circular saw to cut a 12mm-wide tenon on each foot. Then, fix the 12mm router bit to your lathe and carve the mortise that will receive it.

We found it extremely helpful to cut a decorative hole at the end of the foot nearest to the trunk. Your design may not need it, but the hole provided us with a gripping point for the G-clamp when gluing the feet to the trunk and temporarily holding them in place.

Step 3: To prepare the trunk, fix it to the lathe and turn according to your chosen design. Measure your progress with spring bow callipers. The trunk of our hatstand was almost entirely round except for the



3 We used a 12mm router bit on our lathe to prepare the tenon at the base of the trunk to take the mortise of each foot

Step 2: For the base feet, we began by creating a freehand drawn template and transferring the design onto timber planks. The feet measured 24mm wide and 250mm in total length. If you follow our assembly, remember to include enough length on each foot to be attached to the trunk in a mortise and tenon joint. Our hatstand has four feet.

A hatstand can become top-heavy when fully laden, therefore the size of the feet is important



4

When turning the trunk, keep track of your progress with spring bow callipers



5

We used a drill and dowel joints to extend the trunk to our desired length. Each joint must be snug and glued in place

portion around the base where it meets the feet. This enables a solid assembly. You might also want to keep the top section, where the hooks are attached, square for the same reason. This isn't necessary and depends solely on your design and the type of hooks you use.

Step 4: Before attaching any hooks, however, move on to make the umbrella holder and accompanying support disc. The latter sits around the base of the trunk and keeps the point of the umbrellas off the floor. The disc is simply a ring of wood with an outer rim cut from a plank and shaped on the lathe with a woodturning chisel. It should fit snugly over the tip of the trunk, slip down to the base and rest on the top of the feet. Fix it in place using four wood screws.



6

Create a template for the struts on the umbrella holder



7

If you go our route of cutting two half-rounds for the umbrella holder ring, they can be held in place for gluing with a length of string, a clamp and wedges



8

We included a creative hole in each foot, which also serves a practical purpose in the assembly



9

You can create your own hooks or recycle others, as we did

Step 5: Cut a similar ring, but wider, for the uppermost ring of the umbrella holder. The inside measure of ours is 150mm in radius. This is easier for our way, which was to cut two half circles and glue them together around the trunk. The uppermost ring is held in place by four struts. To make them, design a template and cut each strut accordingly. We designed ours in a curve that fixed each strut with wood screws to the trunk and the underside of the ring.

Step 6: Now, fix the hooks in place. You may choose to cut your own, in which case simply follow the process used in making the feet. Design a template, cut and fix to the trunk using another mortise and tenon joint.

Step 7: Once complete, sand down the entire construction, making sure that all sharp edges have been softened. At this point, you can add any coating – we preferred to paint ours, applying an undercoat, sanding and repeating with additional coats until we were satisfied with the finished product. ✂



Replacing a courtyard gate

Denis Lock describes how he replaced a wooden courtyard gate for his son

The wooden gate into the courtyard at my son's townhouse has been in poor shape for quite a while. Attempts by a contractor hired by the body corporate to repair it were far from successful. It had been allowed to rot too far before any repair work was done. "Dad, won't you make a new wooden gate for me please?" I was very busy at the time and we decided to buy a gate, which I would hang for him.

The first problem encountered was that the standard door size is 2 032mm x 813mm. We needed 1 620mm x 800mm. I spent some time examining standard size doors with the thought of buying one and modifying it (cutting it down in size).

The doors at our local hardware store didn't stand up to close scrutiny. Some, which initially appeared to be solid meranti, were,

in fact, a pine core faced with a thin layer of meranti. My son is quite a fundi of at-home shopping on the Internet and he found an online site (Doors Direct), which offered to make a custom-size solid meranti exterior door. We liked what we saw on their website, we liked their approach and we liked their quote. I couldn't make a door for that price. A week after paying the deposit, the custom door was delivered to my workshop. The supplier's quotation made it clear that I would have to do a bit of work. It read, "Please note that this quotation excludes glass, installation, locks, hinges, handles and door frames."

Time to take down the old courtyard gate and take it to my workshop to make some detailed measurements and decide whether the lock, handles and hinges could be cleaned, oiled and reused. This turned



3 Capping strip and blocks



1 Rot beyond repair



2 Close-up of a rotted joint

out to be quite a job. The fixtures used to hold the frame to the brick piers were metal and had rusted solid. Photos 1 and 2 show the old gate lying on my workbench. The extent of the rot was more than I had expected. The frame and gate were being held together by multiple coats of varnish.

Why had the frame and gate rotted so badly? The cause is decay-producing fungi. These fungi, in the form of microscopic,



4 Thicknesser sled

What can you do to avoid water absorption?

1. Avoid horizontal surfaces where water can pool.
2. Avoid contact with the ground.
3. Seal exposed end-grain with silicone or epoxy resin.
4. Seal fixture holes.
5. Use a waterproof adhesive.
6. Use an exterior sealer that provides UV protection and water repellence.
7. Carry out regular maintenance of the finish.



5 The blank ready for machining

This moisture level can only be reached when rainwater, leaking water or condensation pools on horizontal surfaces and is absorbed by the wood or the wood is in contact with wet ground. In the case of the courtyard gate, this absorption happened on the end-grain of the frame pieces and the end-grain of the gate stiles. It can also happen where joints have opened slightly. Initially these are sealed with varnish, but the combination of ultraviolet rays and changes in relative humidity that result in wood movement cause the varnish to break down and the joints to open. Pooled water on these horizontal surfaces is absorbed and when the moisture content of the wood reaches around 30%, rot starts.

The old gate certainly did not adhere to suggestions 1 and 2 in the box above, and this was the reason for the major decay seen in photos 1 and 2. I avoided horizontal surfaces on the new installation by adding a sloping cap to the top of the gate and the tops of the two frame pieces. These can be seen in photo 3. I made the double-slope (20°) caps using a sled (photo 4) on my thicknesser. Photo 5 shows a 900mm x 60mm x 30mm meranti blank fixed in the sled ready for thicknessing. The 900mm length allowed for possible snipe when thicknessing: The finished length is 800mm. Four or five passes through my thicknesser produced the first sloping face (photo 6). The blank was turned through 180°, fixed back into the sled and the second sloping face machined. The result is seen in photo 7: Ready to be grooved on the underside (done on my router table) and cut to length.

The groove can be seen in photo 8. The groove gives accurate positioning and results in a joint that won't open to allow the ingress of water. You can also see in photo 8 that I used two adhesives to attach the door cap. Shower silicone was used where the cap covers the end-grain of the gate stiles and a waterproof wood glue (Alcolin Ultra) was used where it joins to the top gate rail. The silicone provides a flexible waterproof seal to the end-grain

threadlike strands, permeate the wood and consume the cellulose, which is the major constituent of wood cells. Some fungi also consume the lignin, which is the 'glue' that holds the cells together. The growth of fungi requires temperatures between 10°C and 35°C as well as oxygen and water. The first two conditions are certainly met in a Gauteng courtyard. Many experiments have shown that rotting of wood by fungi is of no practical significance if the moisture content of the wood is below 30%.



6

First sloping face



7

Both sloping faces

top of the gate stiles. They are also covered with an overlapping sloped cap – a very different scenario from the original gate that had exposed end-grain and an opened joint at the mercy of the Highveld sun and pooled rainwater.

The two old frame pieces (attached to the brick piers at each side of the gate) were 90mm x 70mm in cross section. I didn't have meranti that size, so I built up the frame stiles by laminating three pieces. The forest of clamps seen in photo 9 is the first stage of this lamination. It goes without saying that I used a waterproof wood glue (Alcolin Ultra).

The old frame pieces extended down to ground level and sucked up the rainwater that pooled on the courtyard paving. This was not necessary as the gate is some 50mm clear of the paving. The bottom end



8

Silicone plus waterproof glue



9

Laminating the frame pieces



10

The shoe being attached with epoxy

of the new frame pieces will be 50mm clear of the paving. Despite this, I decided to add a 'shoe' to seal the end-grain.

The shoe consisted of a piece of 12mm meranti cut to match the profile of the frame. It was attached with an epoxy adhesive (abe Epidermix 372) as seen in photo 10. This also waterproofs the end-

grain of the frame. Photo 11 shows the finished cap (also attached with epoxy) and shoe.

As stated earlier, fixture holes (two can be seen in photo 11) must be sealed. The largest plug cutter I have is an old Imperial 5/8" diameter cutter. This is not large enough for a socket spanner head, so I settled for a screw-in (Torx head) Fischer fixture (photo 12). I don't have a 5/8" (15.88mm) drill bit. The closest I had was a 16mm spade bit. I say 'had' as a touch on a grindstone turned it into a 15.88mm bit. The plugs are now a tight fit. When the gate is hung, I will seal the fixture head with silicone and then, using a waterproof glue, add a wooden plug.

We were able to salvage the hardware fittings; it took a lot of paint stripper. The accurate fitting you see in photos 13, 14 and 15 result from pattern routing (the subject of my article last month).



11

The shoe and cap after sealing

The finish seen in photos 3 and 11 is three coats of Woodoc 35. This a tinted (additional UV protection) water-repellent exterior sealer. I have followed the six suggestions given earlier. This new gate will last a lot longer. I'll make sure that the seventh suggestion is also implemented. The finish will be regularly inspected for weathering and, when necessary, be cleaned with steel wool and mineral turpentine and given a new coat of sealer. ✂



The lock fitted



The striker plate fitted



Fixture plus plugs



The hinge fitted



Contact

Denis Lock runs a router school and shop in Bedfordview, Gauteng. He can be contacted at denis.lock@worldonline.co.za or 082-267-5948. Visit his website at www.routingwithdenis.co.za

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The Woodworker's Corner is a woodworking showcase



A big hobby

This is just one of the new additions to our home. The bar was built with 32mm pine laminate with the stacking doors being built and assembled at home. Carpentry as a hobby is a BIG part of my life..

Shaun Meyer, Tools 4 Wood Heat Wave Competition



For keepsakes

I own a little side business called Beards & Banjos. I handcraft wooden lamps and pair them with Edison bulbs. I do it all from scratch, sanding the block, drilling the holes and hand painting designs and logos onto the front before wiring them up with nifty toggle switches and fabric cable.

Bronwyn Furno, www.beardsandbanjos.com

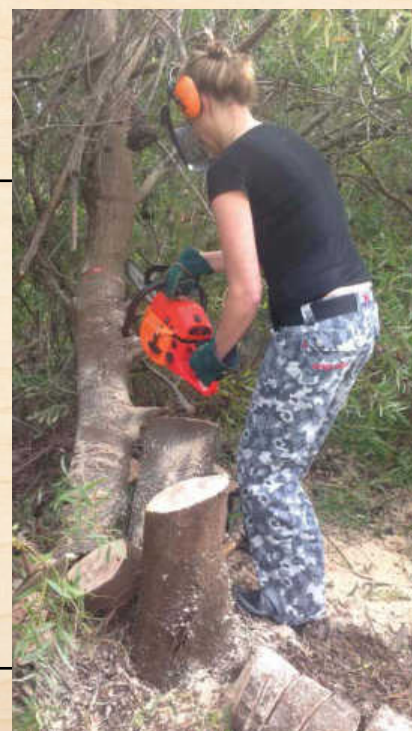


Please send us pictures of your projects. Write a caption with your name, inspiration, type of wood, etc. and send it to editorial@homehandyman.co.za

Chopping wood

Your magazine is one of a few DIY magazines I buy monthly. My tool collection is larger than most of the men I know, and if given the option to go shoe shopping or tool shopping, tools win without a doubt! This is a photograph of me using a chainsaw for the first time. The tree is Port Jackson – an alien invasive species, which will be chopped into firewood.

Joleen Stokell, by email



BOOKSHELF

General manager at Hardware Centre Marius Ackerman reviews the latest in woodworking literature

One-Board Woodworking Projects

Author: Andy Standing

Publisher: The Taunton Press

When you are planning a woodworking project, one of the many things to consider is the cost of the materials you plan to use. Any project requires a huge amount of wood – surely you cannot use just one board for a project? Then I picked up *One-Board Woodworking Projects*, which claims that you can do just that!

So, what can you make with one board? A floorboard, or a shelf? Well, with a little bit of imagination, you can do so much more! *One-Board Woodworking Projects* provides the reader with plans and inspiration to construct a range of useful and functional items for the home and workshop, without the need for complicated lists of materials. Each of the projects featured in this publication is made from a single board, with the occasional need for hardware such as bolts and hinges, and perhaps the odd piece of sheet material such as plywood.

Construction techniques are a mix of both traditional and modern joinery. The projects can be made using hand tools only, or power tools depending on your preference. Furthermore, the projects can be modified to suit your particular needs and will give you some inspiration to create your own unique projects!

This 175-page softcover publication proves without a doubt that woodworking projects don't need to be overcomplicated or require a vast array of tools and material.

For more information, contact Hardware Centre
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Canon

I made this scale cannon from a piece of oak I had laying around. The barrel is 290mm long.

Francois Mare, Tools 4 Wood Heat Wave Competition



Woodworking associations

Woodworking associations' details are available on our website at www.homehandyman.co.za



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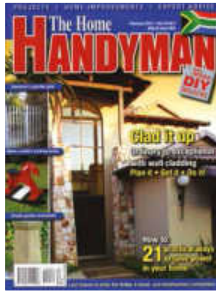
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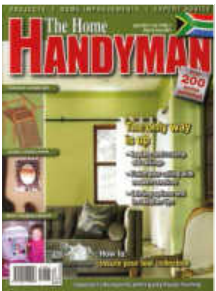
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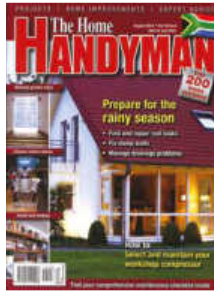
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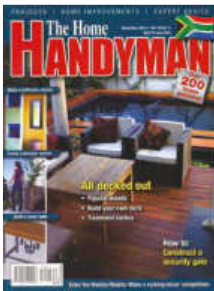
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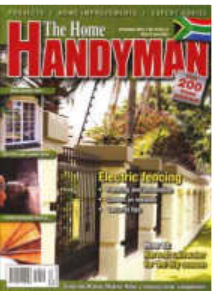
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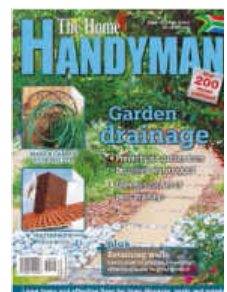
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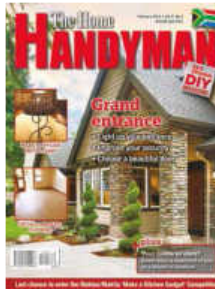
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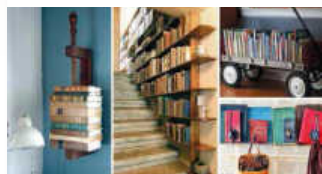


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Seen at the Vermont workshop

Aarifah building a three-tier shelf.
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Throwback Thursday

37 ideas to decorate your home with old books.

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Tiles need a new look?

Retiling is a headache. Have you considered painting your tiles?

Yes, it can be done.
<http://bit.ly/1qq7PzW>
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Popular pin of the month

Throwback Thursday:
Old drill press with style

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Question of the week

If you could renovate one room in your house, which room would it be?

#roomrenovate #renovations

Popular responses: The playroom, bathroom, kitchen, garage, bachelor flat, kid's bedroom



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At the polls

The results are in for the below poll:

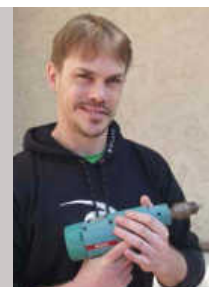
Do you service your own power tools?

Yes: 71%

No: 29%

See how Gareth got his old Bosch drill back in working order in the August 2016 issue.

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Reuben the Screwman meets a mussel determined to make a reappearance

The story of a militant mussel

It was a chilly Friday morning at the office, the day of the bank manager's biannual visit, a visit that ranks right up there with a visit to the dentist. Although Arthur was a pleasant enough soul, he still put the fear of God into me, a bit like a school principal; you like him, but can never get close to him.

The night before, I made my wife and myself the most delicious, creamy mussel soup, a real winter warmer comfort meal. However, one of the mussels had a bit of an attitude, which I foolishly chose to ignore. Not much could have been done about the situation as it was already in my mouth and ready for despatch to the stomach. As it went down, making its way past the oesophagus, it already wanted to return but it was too late and the full cycle was to be completed with disastrous consequences.

The mussel gave its first sign of aggression, a rumble from the depths of my stomach that resembled that of a late afternoon thunderstorm

Back at the office, Lettie had set out the obligatory tray with three glasses and a jug of water in the boardroom, with a second tray of tea and biscuits to follow (which no one ever touched). It was 11am and the hour of doom had arrived, in more ways than one. As I went down the stairs to meet Arthur at reception, the militant mussel gave its first sign of aggression, a rumble from the depths of my stomach that

resembled that of a late afternoon thunderstorm on the Highveld.

Ten minutes into the meeting and Arthur had just completed his textbook introduction of 'How to open a meeting' straight from a Dale Carnegie manual. Pleasantries were exchanged: "How is the family? Wife... is she ok?" While all this superficial bonding was taking place, the second onslaught from the militant mussel came, this time with some backup from the rest of the mussels. Just before the call for the financials, the standard grade three joke came. This was to set all at ease and bring to an end the exchange of pleasantries before business commenced.

To my surprise, it was not the same joke used in previous years. It was rather funny and sent me into a fit of laughter, followed by a volley of rapid fire from the great intestine. My eyes squinted as I clenched, trying to prevent another volley, but to no avail, the unthinkable had happened. Now clearly, this action was not part of the curriculum in his manual. A dead silence fell in the room, no words were uttered, everyone was busy with their own thoughts trying to figure out the next move.

The move was mine. I excused myself, and with the grace and poise of Baryshnikov, buttocks clenched so tightly you could crack a walnut in there, I tiptoed out of the boardroom. It was a long dance to freedom, down the stairs, past the counter, past the staff and, eventually, to the sanctuary of the men's room. After a grand scale 'mop-up', I decided to go 'commando' (without underwear) followed by shopping for underwear and then a debriefing with a psychologist. ✱

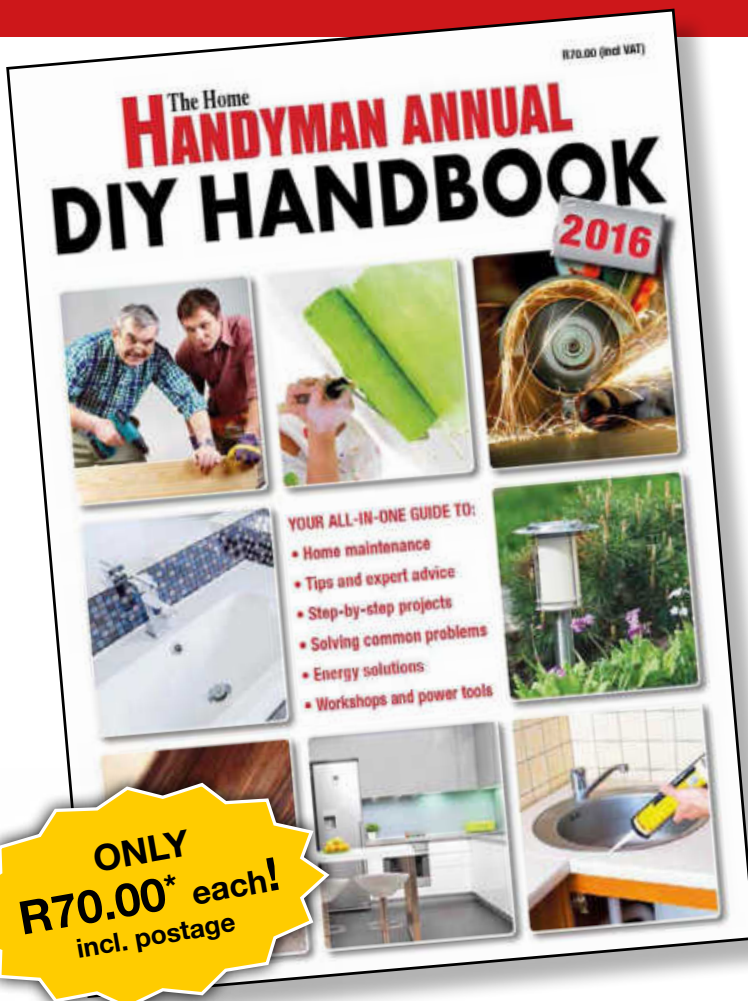
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